

ORDER NO. KM40202822C1

F12

Service Manual

Telephone Equipment

Caller ID Compatible

KX-TG2257S

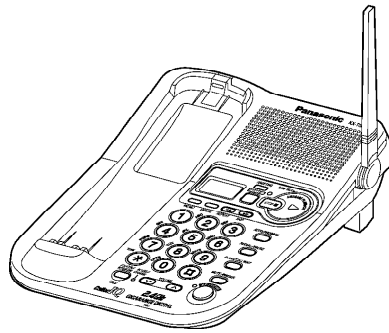
2.4GHz Digital Cordless Answering System

Silver Version

(for U.S.A.)



(Handset)



(Base Unit)

SPECIFICATIONS

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	Base Unit	Handset
Power Source:	AC Adaptor (POLV1Z)	Rechargeable Ni-Cd battery
Receiving Frequency:	39 channels within 2411.77625~2479.87350 MHz	39 channels within 2411.77625~2479.87350 MHz
Receiving Method:	Double super heterodyne	Double super heterodyne
Transmitting Frequency:	39 channels within 2411.77625~2479.87350 MHz	39 channels within 2411.77625~2479.87350 MHz
Oscillation Method:	PLL synthesizer	PLL synthesizer
Tolerance of OSC Frequency:	8.192 MHz	8.192 MHz
Modulation Method:	TDD-FSK	TDD-FSK
ID Code:	28-bit	28-bit
Dial Mode:	Tone (DTMF)/Pulse	Tone (DTMF)/Pulse
Redial:	1 (Up to 32 digits)	5 (Up to 32 digits)
Speed Dialer:	10 (Up to 22 digits)	50 (Up to 22 digits)
Power Consumption:	—	11 days at Standby, 5 hours at Talk
Dimension (W × D × H):	7 ³ / ₃₂ " × 8 ¹⁵ / ₃₂ " × 3 ⁵ / ₁₆ " (180 × 215 × 84mm)	2 ⁵ / ₃₂ " × 1 ²⁵ / ₃₂ " × 9 ³¹ / ₃₂ " (55 × 45 × 245 mm)
Weight	1.03 lbs. (470 g)	0.51 lbs. (230g) with battery

Design and specifications are subject to change without notice.

IMPORTANT INFORMATION ABOUT LEAD FREE, (PbF), SOLDERING

If lead free solder was used in the manufacture of this product the printed circuit boards will be marked PbF. Standard leaded, (Pb), solder can be used as usual on boards without the PbF mark.

When this mark does appear please read and follow the special instructions described in this manual on the use of PbF and how it might be permissible to use Pb solder during service and repair work.

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WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

When you note the serial number, write down all 11 digits. The serial number may be found on the bottom of the unit.

FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.

When repairing, the following precautions will help prevent recurring malfunctions.

1. Cover plastic parts boxes with aluminum foil.
2. Ground the soldering irons.
3. Use a conductive mat on worktable.
4. Do not grasp IC or LSI pins with bare fingers.

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.

Dispose of used batteries according to the manufacturer's Instructions.

Panasonic

1. ABOUT LEAD FREE SOLDER (PbF: Pb free)

Note:

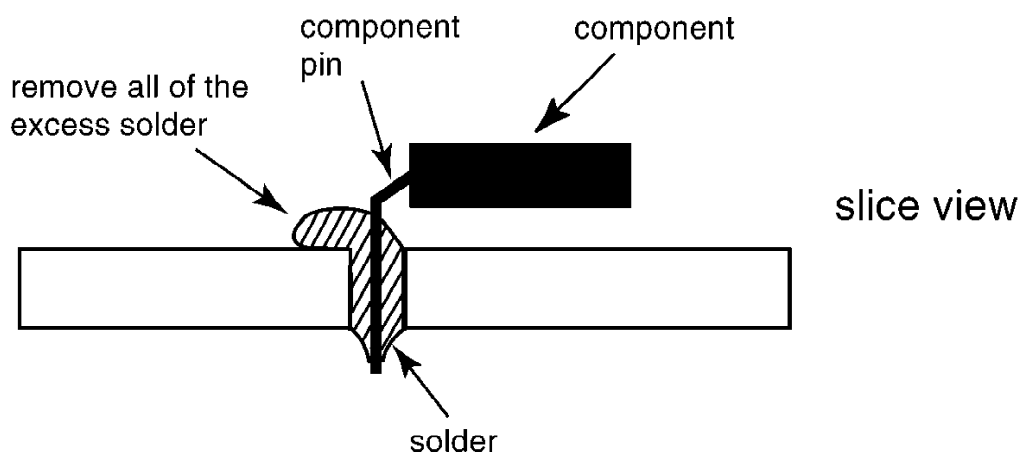
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.

We will use PbF when discussing the lead free solder used in our manufacturing process which is made from Tin, (Tn), Silver, (Ag), and Copper, (Cu).

This model, and others like it, manufactured using lead free solder will have PbF stamped on the PCB. For service and repair work we suggest using the same type of solder although, with some precautions, standard Pb solder can also be used.

Caution

- PbF solder has a melting point that is 50° ~ 70° F, (30° ~ 40°C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700° ± 20° F, (370° ± 10°C). In case of using high temperature soldering iron, please be careful not to heat too long.
- PbF solder will tend to splash if it is heated much higher than its melting point, approximately 1100°F, (600°C).
- If you must use Pb solder on a PCB manufactured using PbF solder, remove as much of the original PbF solder as possible and be sure that any remaining is melted prior to applying the Pb solder.
- When applying PbF solder to double layered boards, please check the component side for excess which may flow onto the opposite side (See figure, below).

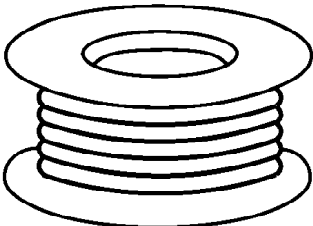
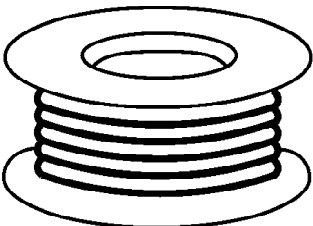
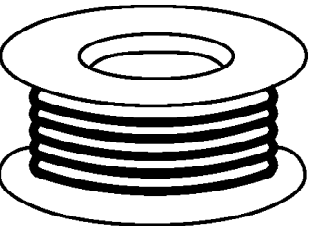


1.1. Suggested PbF Solder

There are several types of PbF solder available commercially. While this product is manufactured using Tin, Silver, and Copper, (Tn+Ag+Cu), you can also use Tin and Copper, (Tn+Cu), or Tin, Zinc, and Bismuth, (Tn+Zn+Bi).

Please check the manufacturer's specific instructions for the melting points of their products and any precautions for using their product with other materials.

The following lead free (PbF) solder wire sizes are recommended for service of this product: 0.3mm, 0.6mm and 1.0mm.

0.3mm X 100g	0.6mm X 100g	1.0mm X 100g
		

1.2. How to recognize that Pb Free solder is used (at KX-TG2257S)

1.2.1. Base Unit PCB

PBF is stamped on the upper of DC jack to show that Pb free solder is used.(See the figure below.)

(Component View)

1.2.2. Handset PCB

PBF is stamped between battery terminals to show that Pb free solder is used.(See the figure below.)

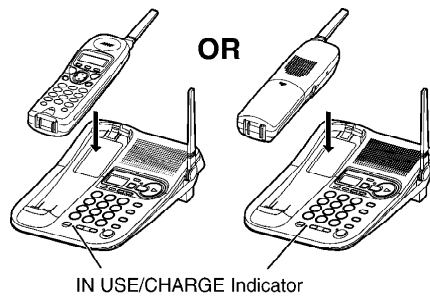
(Component View)

2. STANDARD BATTERY LIFE

2.1. Battery Charge

Place the handset on the base unit and charge for about 15 hours before initial use.

- The IN USE/CHARGE indicator lights and a beep sounds.



2.2. Battery Strength

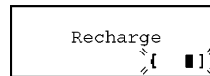
You can check the battery strength on the handset display.
The battery strength is as shown in the chart below.

Display prompt	Battery strength
{ ■■■ }	Fully charged
{ ■■ }	Medium
{ ■ }	Low
{ ■ } (flashing)	Needs to be recharged.

2.3. Recharge

Recharge the battery when:

- "Recharge" is displayed on the handset,
- "{ ■ }" flashes on the display, or
- the handset beeps intermittently while it is in use.



- If you DO NOT recharge the handset battery for more than 15 minutes, the display will keep indicating "Recharge" and/or "{ ■ }" will continue to flash.

2.4. Battery information

After your Panasonic battery is fully charged:

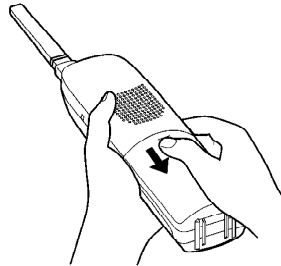
Operation	Operating time
While in use (TALK)	Up to 5 hours
While not in use (Standby)	Up to 11 days

- The battery operating time may be shortened depending on usage conditions, such as viewing the Caller ID Caller List or directory list, and ambient temperature.
- **Clean the handset and the base unit charge contacts with a soft, dry cloth. Clean if the unit is subject to grease, dust or high humidity.** Otherwise the battery may not charge properly.
- If the battery is fully charged, you do not have to place the handset on the base unit until "Recharge battery" is displayed and/or "{ ■ }" flashes. This will maximize the battery life.
- The battery cannot be overcharged.

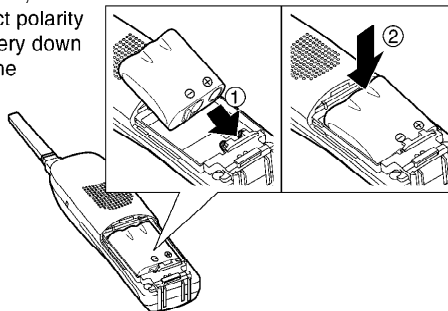
3. BATTERY REPLACEMENT

If "Recharge" is displayed and/or "1" flashes after being fully charged, replace the battery with a new Panasonic P-P511 (PQPP511SVC) battery.

- 1 Press the notch on the battery cover firmly and slide it as indicated by the arrow.



- 2 Remove the old battery. Insert the new battery into the handset as shown, matching the correct polarity (①). Press the battery down until it places into the compartment (②).



- 3 Close the cover. Make sure you charge the new battery for about 15 hours in order to display the battery strength prompt correctly.

A nickel cadmium battery that is recyclable powers the product you have purchased. At the end of its useful life, under various state and local laws, it is illegal to dispose of this battery into your municipal waste stream. Please call 1-800-8-BATTERY for information on how to recycle this battery.

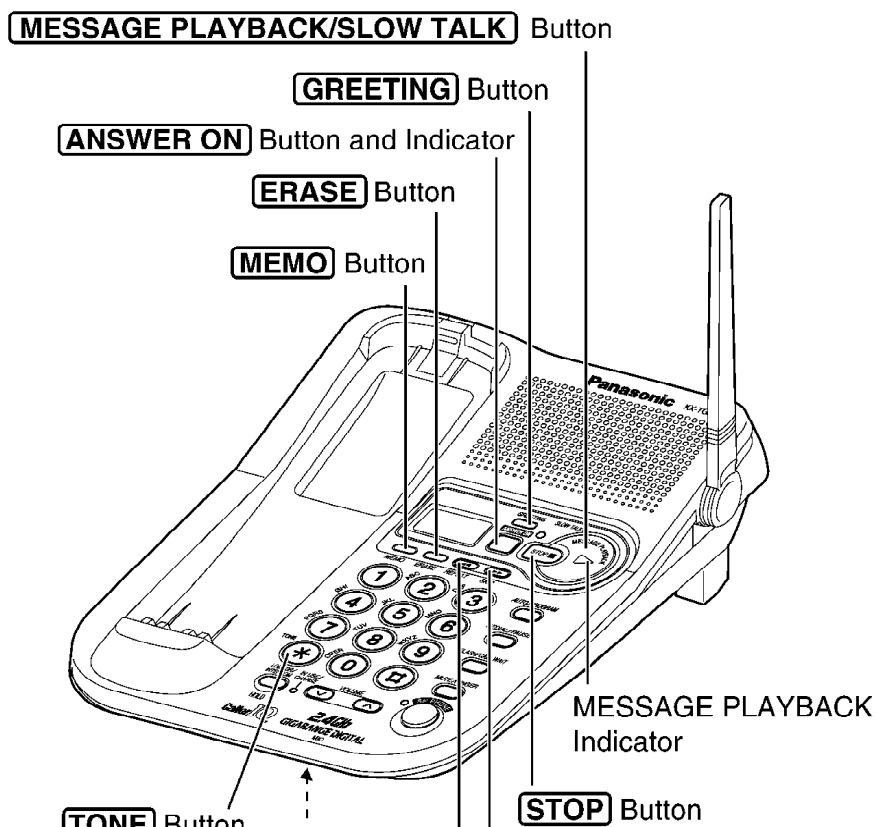
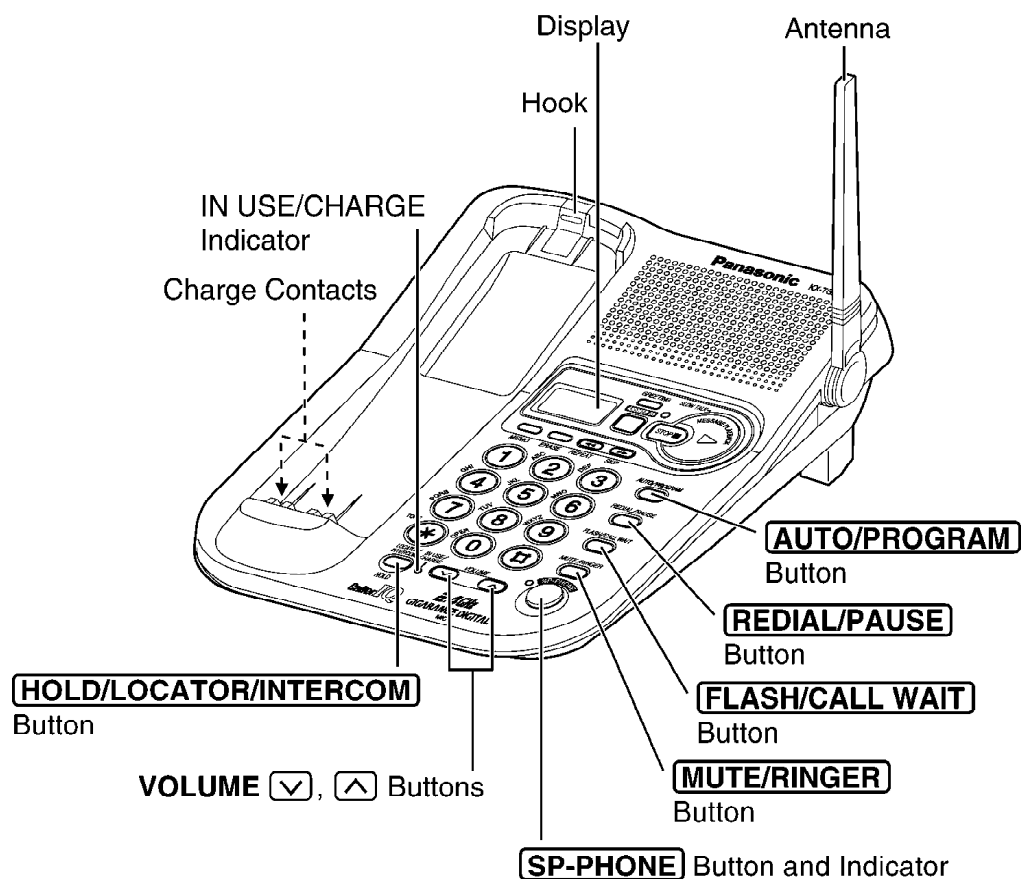


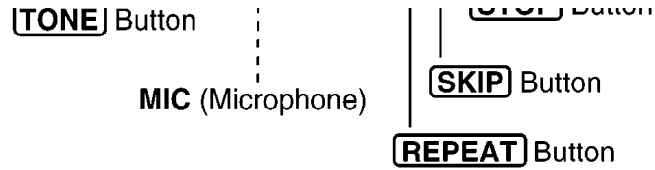
Note for service:

The battery strength may not be indicated correctly if the battery is disconnected and connected again, even after it is fully charged. In that case, by recharging the battery as mentioned above, you will get a correct indication of the battery strength.

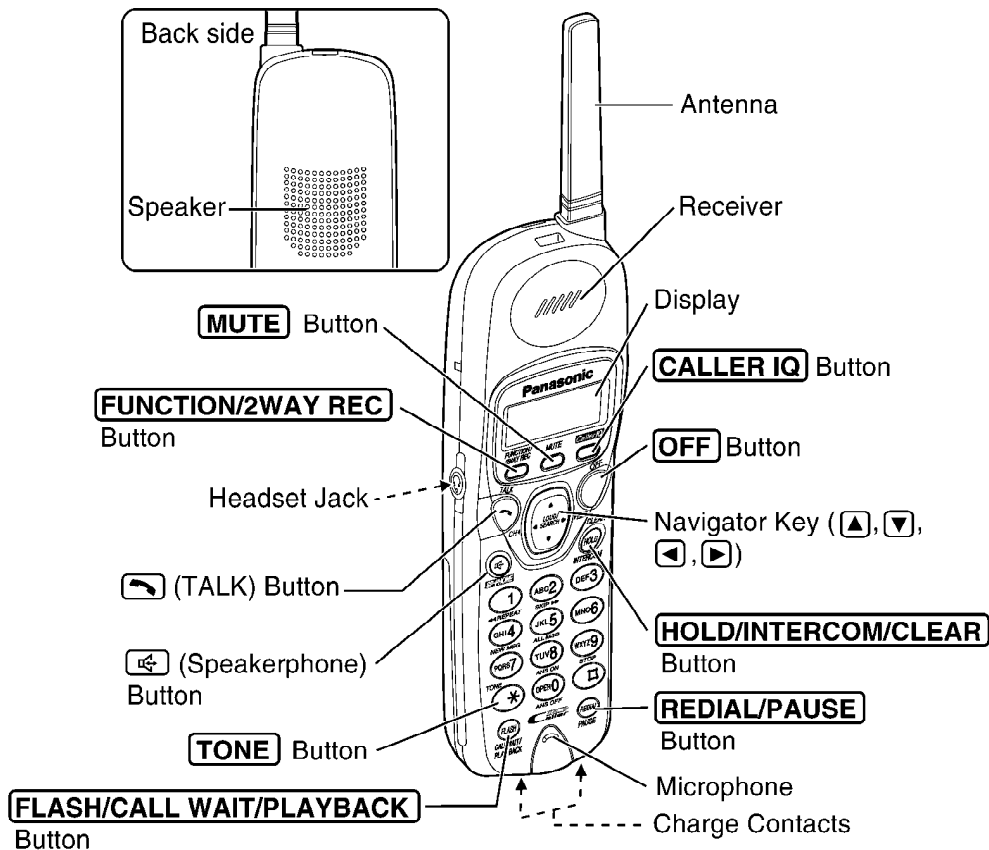
4. LOCATION OF CONTROLS

4.1. Base unit



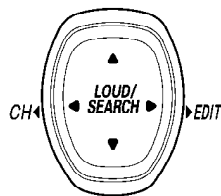


4.2. Handset



How to use the Navigator key

This key has four active areas that are indicated by arrows.



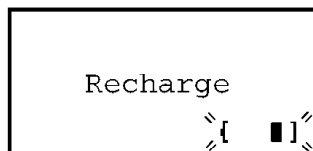
- Pressing the up or down arrow allows you to enter the Caller List and scroll through the function menu, the Caller List and the directory list. It is also used to adjust the handset ringer and receiver/speaker volumes.
- Pressing the right or left arrow allows you to enter the directory list and move the cursor when entering items. The right arrow is used to select or confirm your menu choices and to edit a phone number of the Caller List into one of 3 patterns. The left arrow is used to select a clearer channel.

Throughout this Service Manual, the navigator key is indicated by the arrows ▼, ▲, ◀ or ▶.

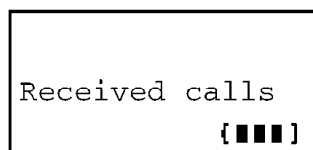
5. DISPLAYS

Both the handset and the base unit show you instructions and information on the displays. These display prompts are shown below.

5.1. Handset display

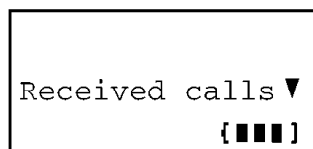


The battery needs to be charged. Place the handset on the base unit to charge the battery.



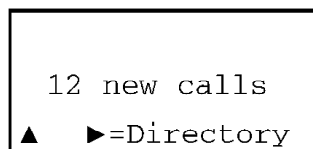
(Handset on the base unit)

The display shows that you have received new calls. To check the new calls, lift the handset and press  or .



(Handset off the base unit)

The display shows that you have received new calls. To check the new calls, press  or .



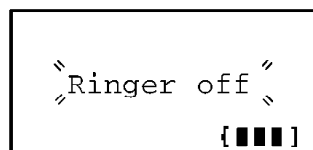
This display shows the number of new calls when  or  is pressed while the handset is off the base unit.

To search from the most recent call, press .

To search from the oldest call, press .

To go to the directory list, press .

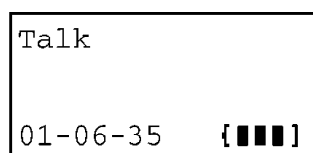
(Directory key).



When the handset ringer volume is set to OFF, "Ringer off" will flash for about 45 seconds after completing operations such as talk, viewing the Caller List or programming.



When a call is received, the display shows the caller's name and number after the first ring.



During a conversation, the display shows the length of the call (ex. 1 hour, 6 minutes and 35 seconds). The battery strength is also displayed.

No link to base
Place on cradle
and try again.

The handset has lost communication with the base unit. Place the handset on the base unit and try again.

SMITH, JACK
1-222-333-4444
11:20A JAN10 x3

This is a name from the Caller List.

The display shows:

- the caller's name,
- the caller's number,
- the time and date of the last call (ex. Jan. 10, 11:20 AM), and
- the number of times called (ex. 3 times).

Ann
123-456-7890

This is a name from the directory. The stored name and phone number are displayed.

BROWN, NANCY
1-555-666-7777
----Waiting-----

A second call is received during a conversation.

Please lift up
and try again.

▼, ▲, ◀ or ▶ was pressed while the handset was on the base unit. Lift the handset and press the button again.

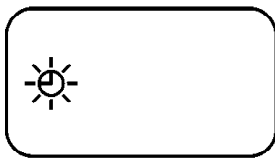
Not available

While the base unit was in use, ▼ or ▲ was pressed to search the Caller List/directory list, ▶ was pressed to select an option or

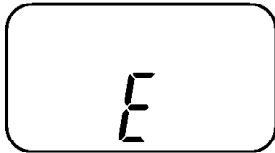
HOLD/INTERCOM/CLEAR was pressed.

Directory full	When trying to store an item or Caller List information in the directory, the directory memory is full.
Save error	While programming procedure, the handset has lost communication with the base unit. Move closer to the base unit and try again.
Remote operation {■■■■}	The handset is operating the answering system remotely.
[Caller IQ on] {■■■■}	Caller IQ service is set to ON.
Set Caller IQ to on.	CALLER IQ was pressed after  or  , while Caller IQ function was OFF.
Download incomplete. Directory full.	When trying to download an item in the directory, the directory memory is full.
Download incomplete. Try again.	During downloading, the unit has lost communication with openLCR.

5.2. Base unit display



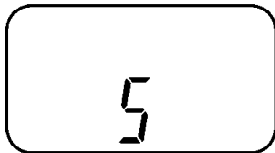
The clock needs adjusting.



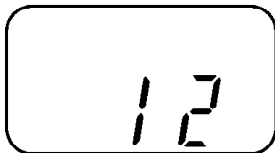
Your greeting or memo message was not recorded correctly. Record it again.



The unit is in the answering system programming mode.



The speaker volume level is set to "5".
You can select:
—9 levels (0-8) are available while using the answering system.
—8 levels (1-8) are available while using the speakerphone and the intercom.



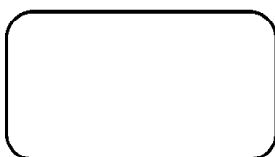
12 messages have been recorded.



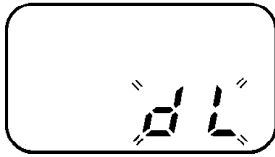
Memory is full. Erase some, or all, of the messages.



The ringer volume is set to OFF.



The recording time is set to "Greeting only".
(The display is blank.)



The unit is downloading from openLCR.

6. openLCR Service for Caller IQ Feature

The Caller IQ feature is compatible with service provided by openLCR.

Important:

- If you have any questions regarding the openLCR service, call openLCR's customer service department at 1-866-openLCR (1-866-673-6527).
- NEITHER KYUSHU MATSUSHITA ELECTRIC CO., LTD. (KME) NOR MATSUSHITA ELECTRIC CORPORATION OF AMERICA (MECA) IS IN ANY WAY AFFILIATED WITH, OR RESPONSIBLE FOR THE ACTS OR OMISSIONS OF, OPENLCR.COM, INC. (OPENLCR). NEITHER KME NOR MECA NOR ANY OF THEIR EMPLOYEES OR AFFILIATES OR CUSTOMERS MAKE ANY WARRANTIES OR REPRESENTATIONS, EITHER EXPRESS OR IMPLIED, TO ANY CUSTOMER OR ANY OTHER THIRD PARTY WITH RESPECT TO ANY OF THE SERVICES PROVIDED BY OPENLCR, NOR ASSUME NOR CREATE ANY OTHER OBLIGATION OF ANY KIND ON BEHALF OF OPENLCR.

6.1. Setting Caller IQ to OFF and ON

After the first download to your phone, the Caller IQ features are automatically turned on. If you need, you can turn off Caller IQ.

6.1.1. To set Caller IQ to OFF (When Caller IQ is ON.)

- | | |
|---|--|
| 1 Press CALLER IQ . | Press "1" or "#".
1:View Info.
#:Get new Info. |
| 2 Press 0 . | To disable
Caller IQ,
press 3,#. |
| 3 Press 3 . | To disable
Caller IQ,
press #. |
| 4 Press # .
• A beep sounds and Caller IQ function is set to OFF.
• The handset will exit the programming mode.
• If 3 beeps sound, Caller IQ is not set to OFF.
Start again from step 1. | Caller IQ off |

6.1.2. To set Caller IQ from OFF to ON

- | | |
|---|---|
| 1 Press CALLER IQ . | To enable
Caller IQ,
press 0,1,*. |
| 2 Press 0 . | To enable
Caller IQ,
press 1,*. |
| 3 Press 1 . | To enable
Caller IQ,
press *. |
| 4 Press * .
• A beep sounds and Caller IQ function is set to ON.
• The handset will exit the programming mode.
• If 3 beeps sound, Caller IQ is not set to ON.
Start again from step 1. | Caller IQ on |
- In steps 1 through 3, if you do not press any buttons for 60 seconds or you press **OFF**, the handset will exit the programming mode.

6.2. Downloading the Telephone Directory Data

To edit your telephone directory, go to the openLCR web site to update your directory, and then download the data to your unit. Accessing the openLCR web site can be done from any computer with Internet access, such as your home, work, library, Internet cafe, etc.

6.2.1. To edit the directory data

If you have already stored items into the directory of the unit, you need to enter all of that items on to the web. Then, add new items on the web site.

1. Go to openLCR's web site at www.openLCR.com and click on "Manage Account" tab.
2. Follow the web screen to edit the telephone directory data.

- Make sure to enter a name up to 15 characters, and a phone number up to 22 digits.

- In the case that you stored or edited the items in the directory of the unit, you also need to store or edit the items on the web site.
- The description on the openLCR web screen is subject to change without notice.

6.2.2. To download the directory data from openLCR

- 1 Press  or , and then, press **CALLER IQ**.

To get new Info., please press #.
- 2 Press **#**.
 - The unit will dial to openLCR automatically.
 - A voice prompt will be heard.

Talk Listen & follow phone guidance.

If you live in or move from another area to Fort Collins, Colorado, press **2** instead of **#**.
- 3 Follow the voice prompt to start downloading.
 - When the downloading starts, the display will show the message on the right.
 - After downloading starts, the handset must be off-hook. DO NOT PLACE the handset on the base unit (placing the handset on the base unit will terminate the download process). DO NOT PRESS **OFF** (pressing **OFF** will terminate the download process).

Download in process. Please wait.
- 4 When downloading is complete, a beep sounds.
 - If 3 beeps sound and "Download incomplete. Directory full." is displayed, some items cannot be stored in the directory. Erase items which do not exist on the web from the directory of the unit. Then, start again from step 1.
 - You cannot access the openLCR server if a telephone or fax machine on the same phone line is in use.
 - While the unit is downloading the data from openLCR, the Call Waiting Service cannot be used.

Download OK!

6.3. Information Download

This enables you to view information such as weather, lottery results and stock quotes from the LCD display on your openLCR-ready unit. Each time you download the data from openLCR, the information will be updated. To view up-to-date information, you will need to download to your unit.

- You can select the items of information on the web site which you want to view.

6.3.1. To update information

- 1 Press  or , and then, press **CALLER IQ**.
- 2 Press **#**.
 - The unit will dial to openLCR automatically and start downloading information.
 - If you live in or move from another area to Fort Collins, Colorado, press **2** instead of **#**.
- 3 When downloading is complete, a beep sounds.

6.3.2. To View information

- 1 Press **CALLER IQ**.
- 2 Press **1**.
 - The items of information which you selected on the web are displayed.
- 3 Select the desired information by pressing dialing buttons **1** to **3**.
- 4 Find more information by pressing  or .
- 5 When finished, press **OFF** or place the handset on the base unit.

Press "1" or "#".
1:View Info.
#:Get new Info.

1:Weather
2:Lottery
3:Stock

Ex. Weather
6-28 12:58pm
Fort Collins CO
78 F PartlyCldy

H 90 L 70 F
UV 2 Dew 64 F
Humidity 42%

[Caller IQ on]


6.4. Clearing the data of CALLER IQ, CALLER ID and Directory [Factory Default]

It is necessary to clear the data in the base unit and the handset.

6.4.1. Base Unit

- 1 While pressing ,  and **SP-PHONE** simultaneously, plug in the power. Then release the buttons.
 - A long beep sounds.
- 2 Press **STOP**.
 - A long beep sounds following a short beep.
- 3 Remove the power cord and plug in the power.
 - Confirm that the base unit turns to the standby mode. (LCD shows  and  flashes.)

6.4.2. Handset

If you want to initialize the user setting data such as flash time, dialing mode, etc. on the handset unit, please follow the procedure below.

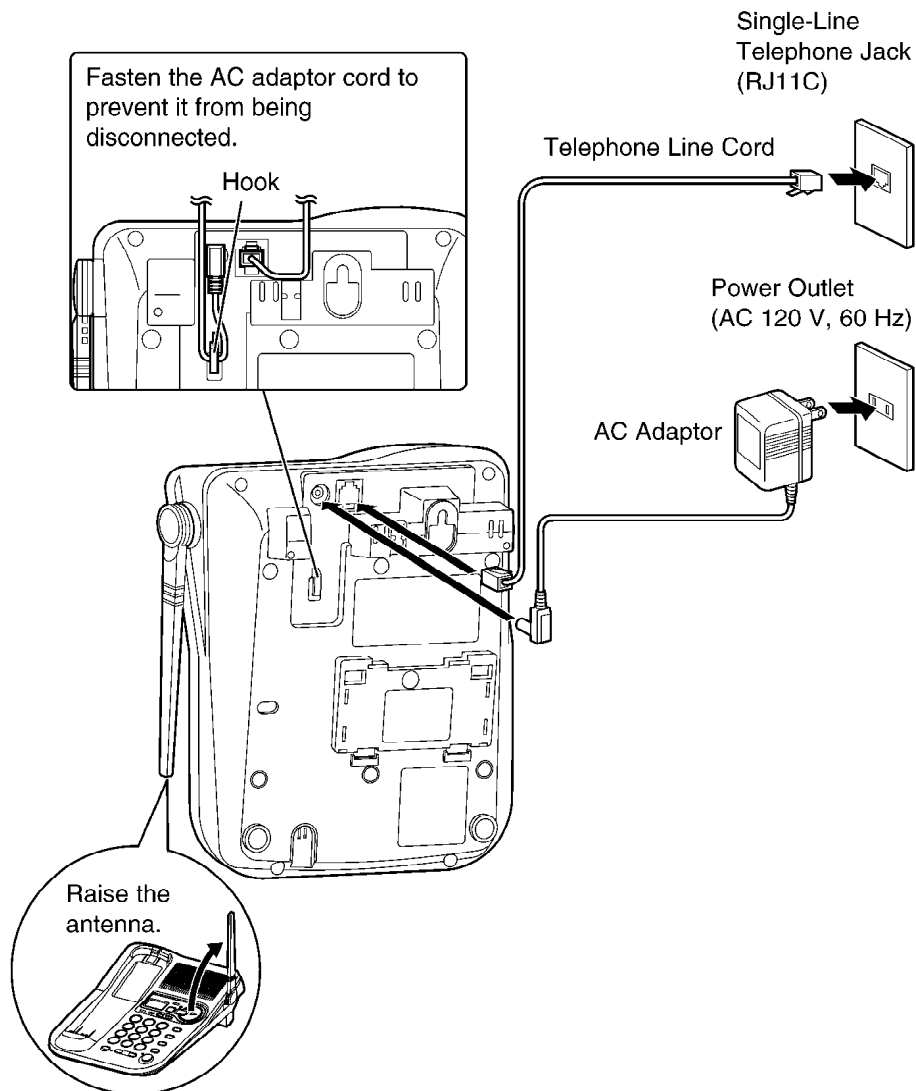
- 4 Press **[2]**, **[5]**, **[8]**, and **[0]** simultaneously in the standby mode.
• A long beep sounds.

- 5 Disconnect the battery and again reconnect it, or place the handset on the cradle of the base unit which was reset in step 1 to 3 above.**
• Confirm that the handset unit turns to the standby mode (normal use mode; the battery indicator is displayed in the LCD).

Note:

****Otherwise, the handset cannot be reset properly.**

7. CONNECTIONS

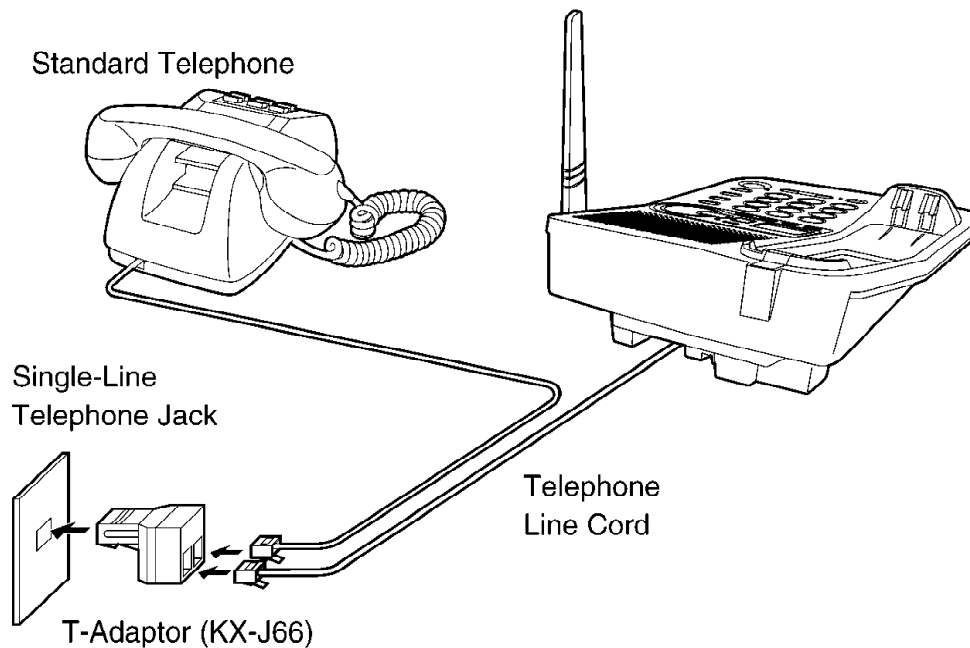


Note:

- **USE ONLY WITH Panasonic AC ADAPTOR PQLV1Z.**
- **The AC adaptor must remain connected at all times. (It is normal for the adaptor to feel warm during use.)**
- **If your unit is connected to a PBX which does not support Caller ID services, you cannot access those services.**

7.1. Adding Another Phone

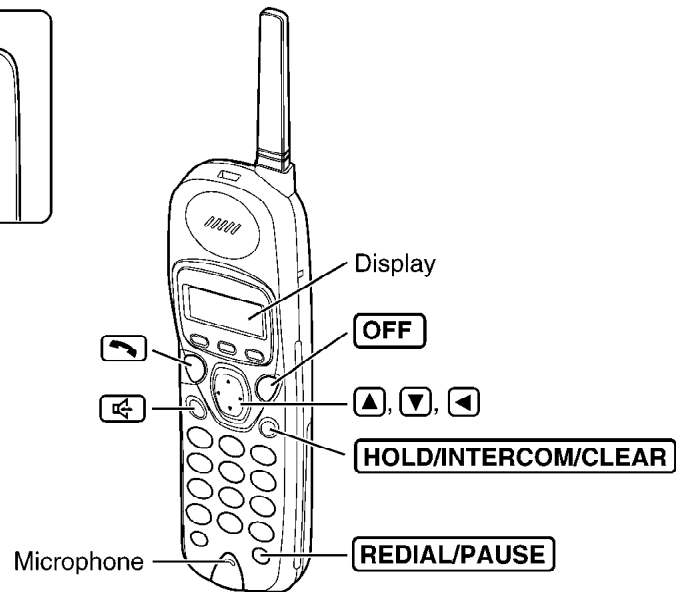
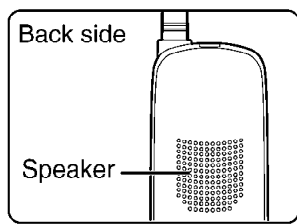
This unit will not function during a power failure. To connect a standard telephone on the same line, use the Panasonic T-adaptor KX-J66.



8. OPERATION

8.1. Making Calls

8.1.1. Handset



1 Press .

Talk

2 Dial a phone number.

- The dialed number is displayed.
- After a few seconds, the display will show the length of the call and the battery strength.

Talk

1112222

Talk

00-00-00 [■■■■]

3 To hang up, press **OFF** or place the handset on the base unit.

Off

00-01-08 [■■■■]

• If the handset has lost communication with the base unit, 3 beeps sound and "No link to base Place on cradle and try again." is displayed.

To have a hands-free phone conversation (Using Digital Duplex Speakerphone)

- 1 Press .

SP-phone
- 2 Dial a phone number.
 - The dialed number is displayed.
 - After a few seconds, the display will show the length of the call and the battery strength.

SP-phone
1112222

SP-phone
00-00-00 [■■■■]
- 3 When the other party answers, talk into the microphone.
- 4 To hang up, press **OFF** or place the handset on the base unit.

Off
00-01-08 [■■■■]

- If the handset has lost communication with the base unit, 3 beeps sound and "No link to base Place on cradle and try again." is displayed.

Hands-free Digital Duplex Speakerphone

For best performance, please note the following:

- Talk alternately with the caller in a quiet room.
- If the other party has difficulty hearing you, press  to decrease the speaker volume.
- If the other party's voice from the speaker cuts in/out during a conversation, press  to decrease the speaker volume.
- While talking using , you can switch to the hands-free phone conversation by pressing . To switch back to the receiver, press .

If noise interferes with the conversation

Press  to select a clearer channel in the talk, speakerphone, intercom or remote operation mode, or move closer to the base unit.

To redial the last number dialed on the handset

Press  or  and press **REDIAL/PAUSE**.

To dial after confirming the entered number

- 1 Dial a phone number.
 - If you misdial, press **HOLD/INTERCOM/CLEAR**. One digit is erased. Dial the correct phone number.

33344444

- 2 Press  .
OR
To have a hands-free phone conversation, press , and when the other party answers, talk into the microphone.
 - After a few seconds, the display will show the length of the call and the battery strength.

Ex.  was pressed.

Talk
33344444

Talk
00-00-00 [■■■■]

- 3 To hang up, press **OFF** or place the handset on the base unit.

To redial using the redial list (Memory Redial)

The last 5 phone numbers dialed with the handset are stored in the redial list.

1. Press **REDIAL/PAUSE**.
 - The last number dialed is displayed.
 2. Scroll to the desired number by pressing  or .
 - You can also scroll through the list by pressing **REDIAL/PAUSE**.
 - To exit the list, press **OFF**.
 3. Press  or .
- To erase an item, repeat steps 1 and 2, and press **HOLD/INTERCOM/CLEAR**.
 - If "No items stored" is displayed, the list is empty.

333-4444
▼▲Redial list

To put a call on hold

Press **HOLD/INTERCOM/CLEAR**.

- "Hold" is displayed.
- If you put a call on hold for more than 6 minutes, an alarm tone will sound. The call will be disconnected after a total of 10 minutes.

Hold
00-00-08 [■■■■]

To release the hold

From the handset, lift the handset, or press  or .

From the base unit, press **SP-PHONE**.

- If another phone is connected on the same line, you can also release the hold by lifting its handset.

To adjust the receiver volume (HIGH, MEDIUM or LOW) or speaker volume (6 levels) while talking

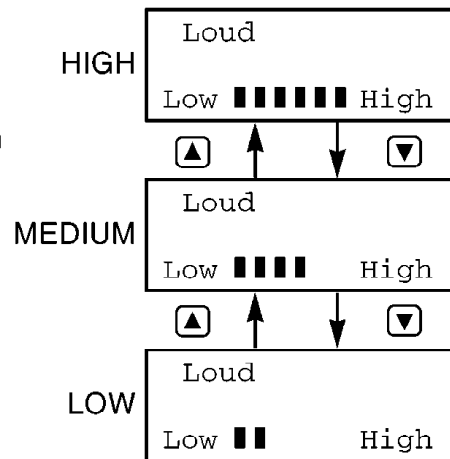
To increase, press ▲.

To decrease, press ▼.

- The display will return to the length of the call.

While using

- Each time you press ▼ or ▲, the volume level will change among 3 levels (HIGH, MEDIUM or LOW). Your phone comes from the factory set to level MEDIUM.



While using

- Each time you press ▼ or ▲, the volume level will change among 6 levels. Your phone comes from the factory set to level 3.

Ex. Speaker volume:
level 6



- When you replace the battery, the selected receiver/speaker volume setting will return to the factory set. Reprogram if necessary.

Lighted handset keypad

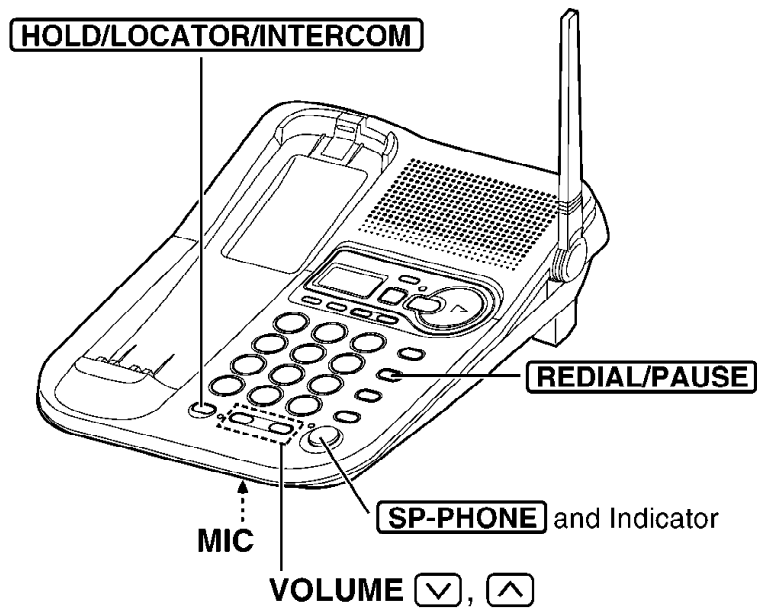
The handset dialing buttons will light when you press a button or lift the handset off the base unit. They flash when a call is received with the handset off the base unit.

The lights will go out a few seconds after pressing a button, lifting the handset, answering a call, hanging up a call, leaving the programming mode or ending the intercom.

Backlit LCD display

The lighted handset display will stay on for a few seconds after pressing a handset button, lifting the handset off the base unit, hanging up a call, leaving the programming mode or ending the intercom.

8.1.2. Base Unit (Digital Duplex Speakerphone)



- 1 Press **SP-PHONE**.
 - The SP-PHONE indicator lights.
 - 2 Dial a telephone number.
 - 3 When the other party answers, talk into the **MIC** (microphone).
 - 4 To hang up, press **SP-PHONE**.
 - The indicator light goes out.
- To switch to the handset while using the base unit speakerphone:
 - If the handset is off the base unit, press  or .
 - If on the base unit, just lift up.
 - During a call using the handset, the call can be switched to the base unit by pressing **SP-PHONE** on the base unit.

Hands-free Digital Duplex Speakerphone

For best performance, please note the following:

- Talk alternately with the caller in a quiet room.
- If the other party has difficulty hearing you, press **VOLUME**  to decrease the speaker volume.
- If the other party's voice from the speaker cuts in/out during a conversation, press **VOLUME**  to decrease the speaker volume.

To adjust the speaker volume (8 levels) while talking

To increase, press **VOLUME** .

To decrease, press **VOLUME** .

To redial the last number dialed on the base unit

Press **SP-PHONE** and press **REDIAL/PAUSE**.

To put a call on hold

Press **HOLD/LOCATOR/INTERCOM**.

- The SP-PHONE indicator flashes.
- If you put a call on hold for more than 6 minutes, an alarm tone will sound. The call will be disconnected after a total of 10 minutes.

To release the hold

From the base unit, press **SP-PHONE**.

From the handset, press  or , or lift the handset off the base unit.

- If another phone is connected on the same line, you can also release the hold by lifting its handset.

8.2. Answering Calls

When a call is received, the unit rings and "Incoming call" is displayed and the IN USE/CHARGE indicator on the base unit flashes. If you subscribe to a Caller ID service, the calling party information will be displayed after the first ring. In order to view the Caller ID information, please wait until the second ring to answer a call.

8.2.1. Handset

If the handset is off the base unit;

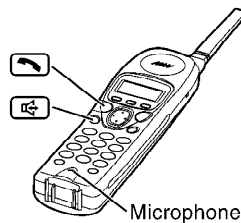
Press .

- You can also answer a call by pressing any dialing button **0** to **9**, ***** or **#** (**—Any Key Talk**).

OR

Press , and when the other party answers, talk into the microphone.

- You can select the ringer volume while a call is being received. Press  or  while the handset is just ringing. To set to OFF, press and hold .



Auto Talk

If you set the Auto Talk feature to ON you can answer a call by lifting the handset off the base unit without pressing  or .



8.2.2. Base Unit

- 1 Press **SP-PHONE**.
 - The SP-PHONE indicator lights.

- 2 Talk into the **MIC**.

- 3 To hang up, press **SP-PHONE**.
 - The indicator light goes out.



- You can select the ringer volume while a call is being received. Press **MUTE/RINGER** while the base unit is just ringing. To set to OFF, press and hold **MUTE/RINGER**.
- When the handset and base unit ringer volumes are set to OFF, they will not ring.

8.3. Automatic Answering Operation

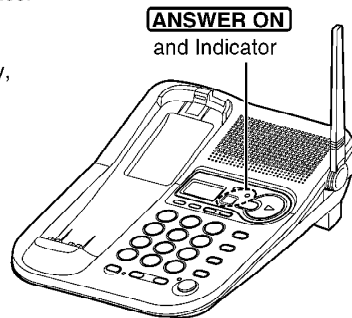
When the unit answers a call, a greeting message is played and the caller's message is recorded.

- The total recording time (including greeting message) is **about 15 minutes**. If messages are recorded in noisy rooms, the time may be shortened by up to 3 minutes.
- A maximum of 64 messages (including greeting message) can be recorded.

8.3.1. Setting the Unit to Answer Calls

Press **ANSWER ON** to turn on the answering system.

- The indicator lights and "Answer set" is heard.
- The unit will announce the remaining recording time if it is less than 5 minutes.
- If you hear "Memory full", "**FULL**" is displayed on the base unit and the ANSWER ON indicator flashes rapidly, erase some, or all, of the messages.



- If you do not want the unit to answer calls, press **ANSWER ON** again to turn off the answering system. The indicator light goes out and "Answer off" is heard.
- You can also turn on the answering system remotely using any other phone.

Monitoring incoming calls

While a call is being recorded, you can monitor it through the speaker. To answer the call with the base unit speakerphone, press **SP-PHONE**. For the handset, press  or . The unit stops recording.

8.4. Listening to Messages

You can see the total number of recorded messages on the base unit display. If MESSAGE PLAYBACK indicator flashes, new messages have been recorded.

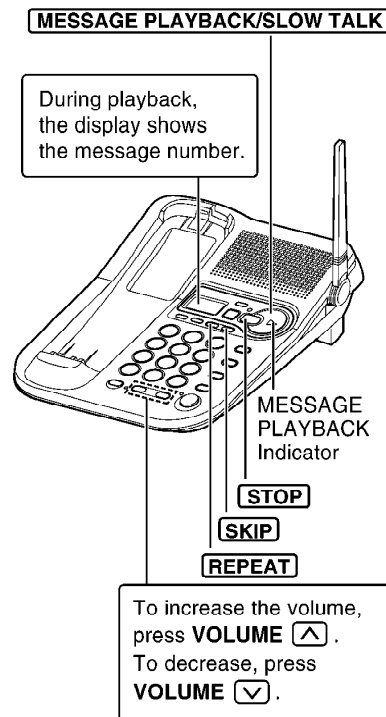
To play back messages, press **MESSAGE PLAYBACK/SLOW TALK**.

When you have new messages:
the unit announces the number of new messages and only new messages are played back.

When you have no new messages:
the unit announces "No new messages. All message playback" and plays back all messages.

When you have no messages:
the unit announces "No messages".

At the end of the last message, "End of final message" is heard. The unit will announce the remaining recording time if it is less than 5 minutes.



8.4.1. Slow Talk Message Playback

For easier listening of recorded messages, you can slow down the playback speed by pressing **MESSAGE PLAYBACK/SLOW TALK** during playback. Each time you press the button, the playback speed will change to slow/normal.

Press **MESSAGE PLAYBACK/SLOW TALK** during playback.

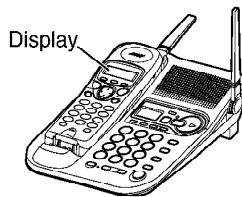
- The playback speed will slow down by 30%.
- To return to the normal speed, press **MESSAGE PLAYBACK/SLOW TALK** again during playback.
- The playback speed will return to normal after playing back all messages.

8.4.2. During playback

To repeat message	Press REPEAT . • If you press within 5 seconds of playback, the previous message will be played.
To skip message	Press SKIP .
To stop operation	Press STOP . • To resume playback, press MESSAGE PLAYBACK/SLOW TALK. • If you do not press any button for 60 seconds or if you press STOP again, the playback mode will be canceled.

For Caller ID service users

During playback, when the handset is on the base unit, the handset display will show the name and/or number of the caller whose message is being played.



To call back the displayed number:

During playback, lift the handset and press  or  within 10 seconds.

—The unit stops playback and automatically dials the displayed phone number.

- After listening to new incoming messages, “✓” will be added to the call entries in the Caller ID Caller List.

8.4.3. From the Handset

If someone else is in the room and you want to listen to the recorded messages privately, you can use the handset.

- 1 Handset:
Press **FLASH/CALL WAIT/PLAYBACK**.
The number of new messages is heard on the handset.
"Remote operation" will be displayed.

- 2 Base unit:
To listen to messages:
Press **MESSAGE PLAYBACK/SLOW TALK**.

When you have new messages:

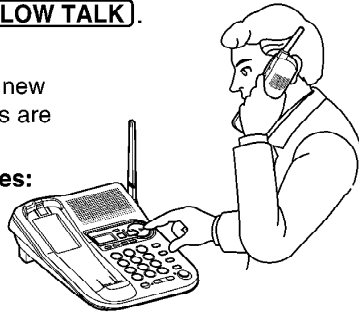
the unit announces the number of new messages and only new messages are played back.

When you have no new messages:

the unit announces "No new messages. All message playback" and plays back all messages.

When you have no messages:
the unit announces "No messages".

- The messages will be heard on the handset.
- **MESSAGE PLAYBACK/SLOW TALK**, **REPEAT**, **SKIP** and **STOP*** can also be used during playback.



- 3 When finished, press **FLASH/CALL WAIT/PLAYBACK** or place the handset on the base unit.

- You can also listen to messages without using the base unit.

*When you press **STOP** during playback, operation is stopped.

To resume the playback, press **MESSAGE PLAYBACK/SLOW TALK** within 15 seconds, or the voice menu will start.

8.5. FLASH Button

Pressing **FLASH/CALL WAIT/PLAYBACK** or **FLASH/CALL WAIT** allows you to use special features of your host PBX such as transferring an extension call or accessing special telephone services (optional) such as call waiting.

- Pressing **FLASH/CALL WAIT/PLAYBACK** or **FLASH/CALL WAIT** causes to release following operations:
 - temporary tone dialing,
 - muting your conversation, or
 - recording your conversation.

Selecting the flash time

The flash time depends on your telephone exchange or host PBX. You can select the following flash times: “700, 600, 400, 300, 250, 110, 100 or 90 ms (milliseconds)”. Your phone comes from the factory set to “700 ms”. **Make sure the unit is not being used and the handset is lifted off the base unit.**

- 1 Press **FUNCTION/2WAY REC**.
- 2 Scroll to “Program” by pressing ▼ or ▲.

Ringer pattern
 ▶Program

- 3 Press ►.
- 4 Scroll to “Set flash time” by pressing ▼ or ▲.

TAD program
 ▶Set flash time
 Set line mode
- 5 Press ►.
 - The current setting is displayed.

Flash time
 : 700ms
 ▼▲ ▶=Save
- 6 Select the desired time by pressing ▼ or ▲.
- 7 Press ► (Save key).
 - A beep sounds.
 - To exit the programming mode, press **OFF**.

Flash time
 : 110ms

- You can exit the programming mode any time by pressing **OFF**.
- If the unit is connected via a PBX, PBX functions (transferring a call etc.) might not work correctly. Consult your PBX supplier for the correct setting.

9. DISASSEMBLY INSTRUCTIONS

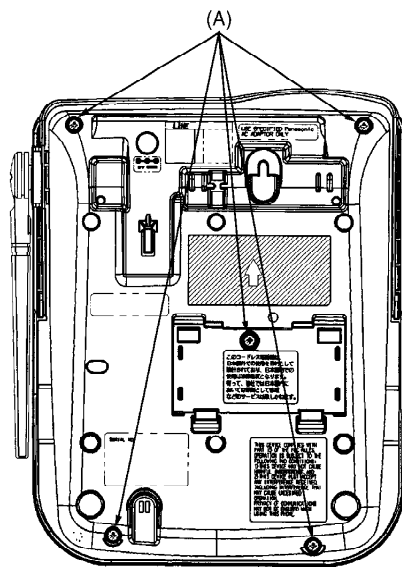


Fig. 1

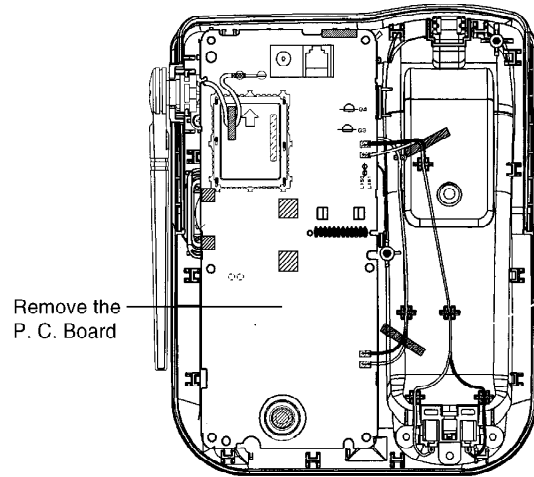


Fig. 2

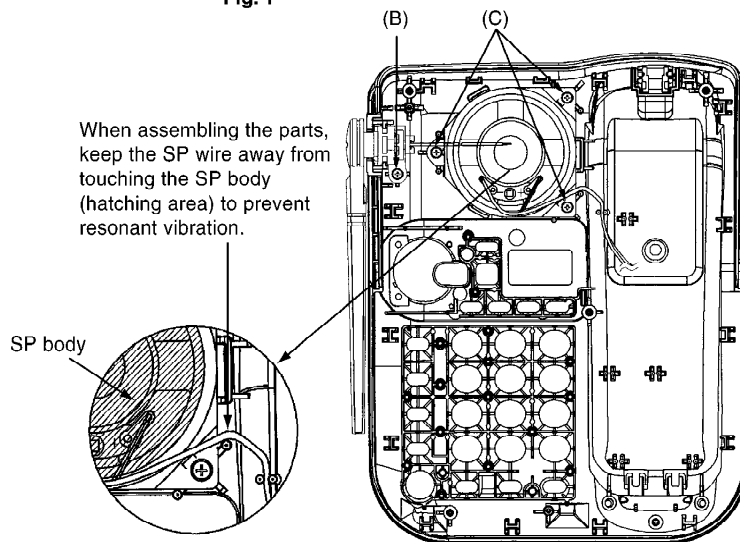


Fig. 3

Shown in Fig.-	To Remove	Remove
1	Lower Cabinet	Screws (2.6 × 12).....(A) × 5
2	Main P.C. Board	Remove the P.C. Board
3	Antenna	Screw (3 × 10).....(B) × 1
	Speaker	Screws (3 × 8).....(C) × 3

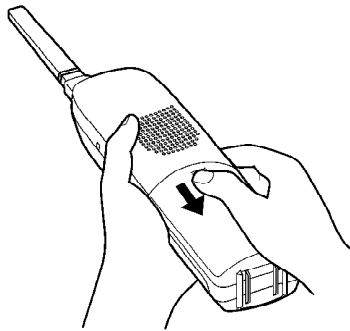


Fig. 4

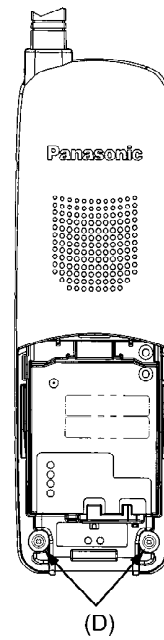


Fig. 5

Note: When opening the rear cabinet, be careful of the speaker lead wire.

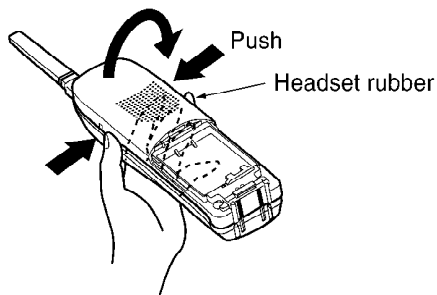


Fig. 6

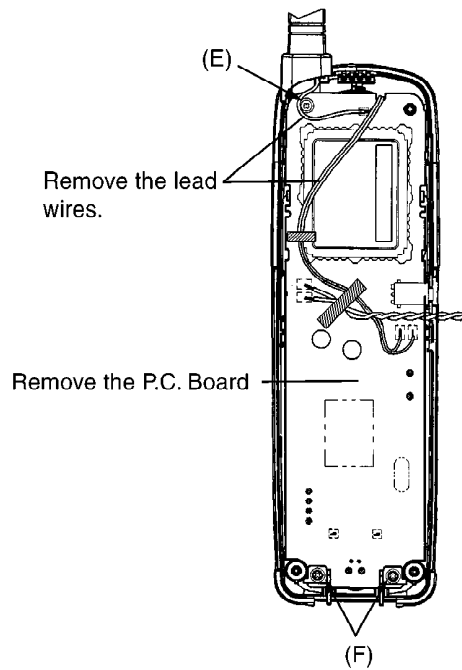
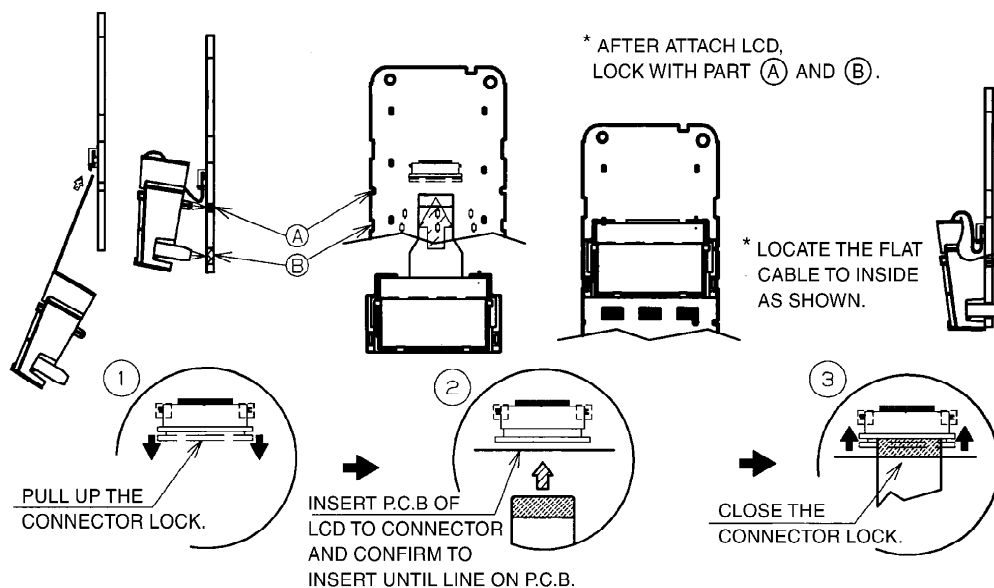


Fig. 7

Shown in Fig.-	To Remove	Remove
4	Battery Cover	Remove the Battery Cover
5	Rear Cabinet	Screws (2.6 × 12).....(D) × 2
6	Rear Cabinet	Remove the Rear Cabinet
7	Main P.C. Board	Screw (2.6 × 12).....(E) × 1
		Screws (2.6 × 10).....(F) × 2
		Remove the lead wires
		Remove the P.C. Board

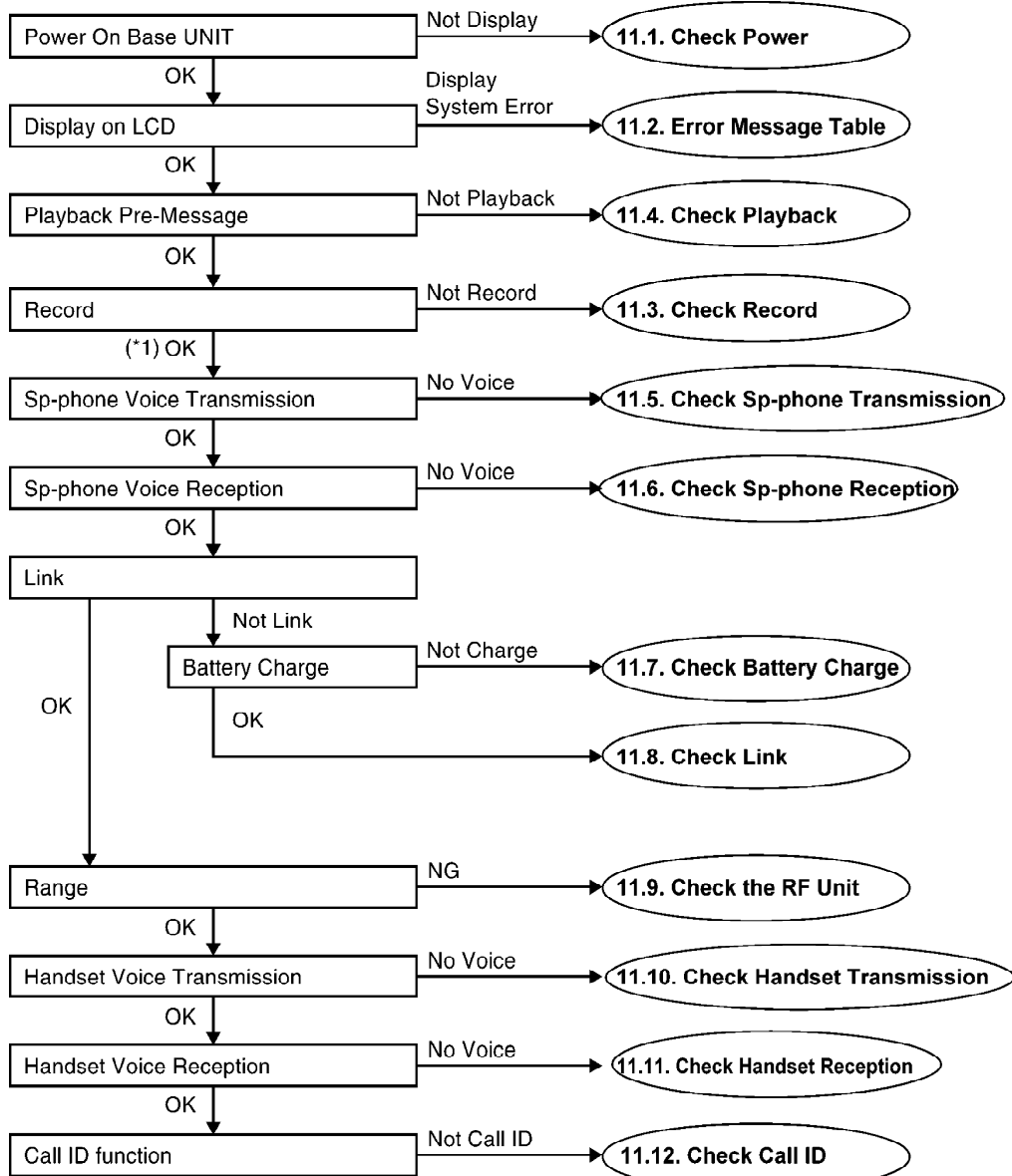
10. ASSEMBLY INSTRUCTIONS

10.1. Assembly the LCD to P.C. Board (Handset)



11. TROUBLESHOOTING GUIDE

MAIN



Cross Reference:

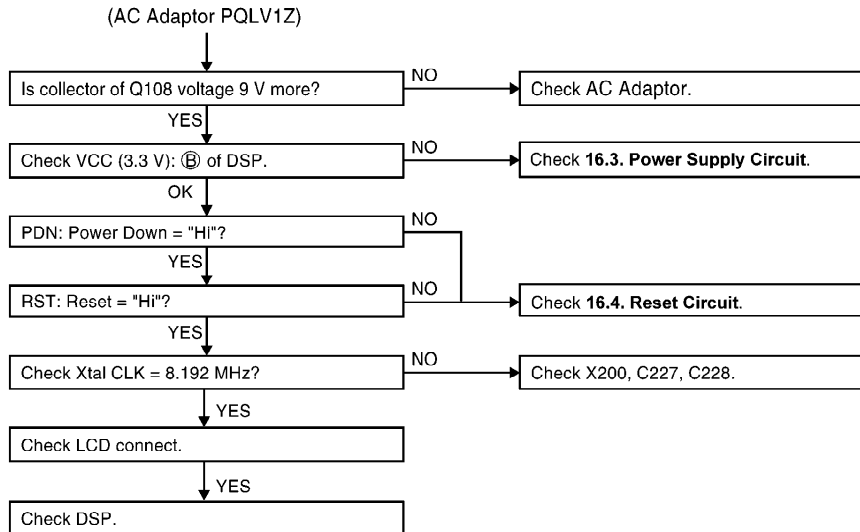
- [Check Power](#) ()
- [Error Message Table](#) ()
- [Check Record](#) ()
- [Check Playback](#) ()
- [Check Sp-phone Transmission](#) ()
- [Check Sp-phone Reception](#) ()
- [Check Battery Charge](#) ()
- [Check Link](#) ()
- [Check the RF Unit](#) ()
- [Check Handset Transmission](#) ()
- [Check Handset Reception](#) ()
- [Check Caller ID](#) ()

(*1) See How to change the Auto Disconnect activation (time) (P.37)

11.1. Check Power

BASE UNIT

Is the AC Adaptor inserted into 120V outlet?



Cross Reference:

[Power Supply Circuit](#) ()

[Reset Circuit](#) ()

Note:

Flash Memory is IC300.

DSP is IC201.

11.2. Error Message Table

Display	Symptom	Remedy
E 1	The initialization was tried, but it could not be done.	1. Check the peripheral circuit of Flash Memory visually. 2. Confirm that the voltage is added to the power supply pin. If no voltage is detected, replace the Flash Memory because it might be defect. 3. Solder the Flash Memory again.
E 3 E 9	When the adjustment data was checked, an error was detected. (The adjustment data may not be written.)	
E 7	The defect of synthesized voice was detected. (The synthesized voice may not be written.)	
E 2	The defect of Flash Memory was detected.	When Flash Memory has the fatal detect, replace Flash Memory. This error hardly occurs.
E 4	The defect of DSP was detected. (The chip in DSP may have a defect.)	1. Confirm Pins of DSP or resoldering. 2. Confirm the oscillation frequency of DSP. If no frequency is found, replace DSP because it might be defect.
E 5 E 6	The defect of DSP was detected.	Replace DSP.

Note:

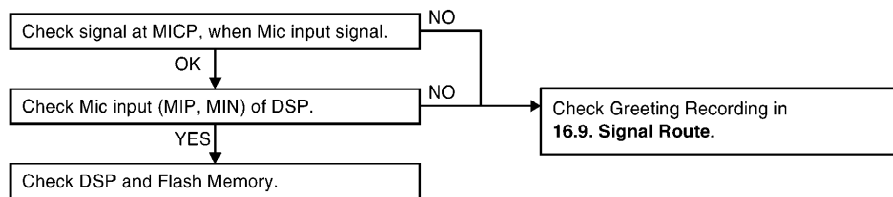
Flash Memory is IC300.

DSP is IC201.

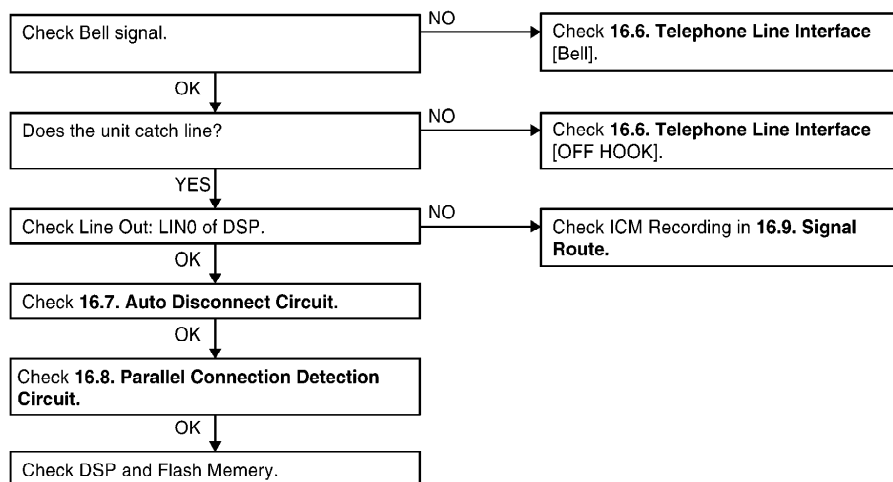
11.3. Check Record

BASE UNIT

Not record Greeting Message



Not record Incoming Message



How to change the Auto Disconnect activation (time)

Some Telephone Company lines (fiber or cable) ON Hook and OFF Hook voltages are lower than conventional lines, which may cause a malfunction of Auto Disconnect detection. To solve this problem, try changing the Auto Disconnect activation (time) through the procedures below.

Auto Disconnect activation (time)		PROCEDURE	Statu
Enable	2 sec [default]	"STOP" → "REPEAT"+"SP-PHONE" simultaneously	Stand-by
	4 sec	"STOP" → "REPEAT"+"UP" simultaneously	
Disable*		"STOP" → "REPEAT"+"DOWN" simultaneously	

*If the "Disable" is selected, even if the parallel-connected telephone is OFF HOOK, the line isn't disconnected.

Cross Reference:

[Telephone Line Interface \(\)](#)

[Auto Disconnect Circuit \(\)](#)

[Parallel Connection Detect Circuit \(\)](#)

[Signal Route \(\)](#)

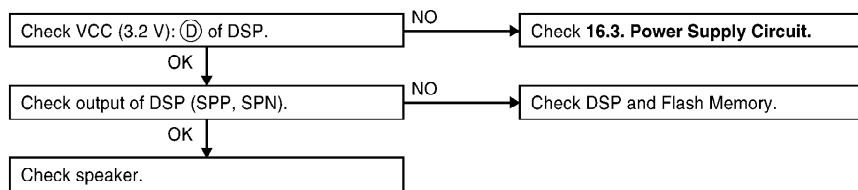
Note:

Flash Memory is IC300.

DSP is IC201.

11.4. Check Playback

BASE UNIT



Cross Reference:

[Power Supply Circuit \(\)](#)

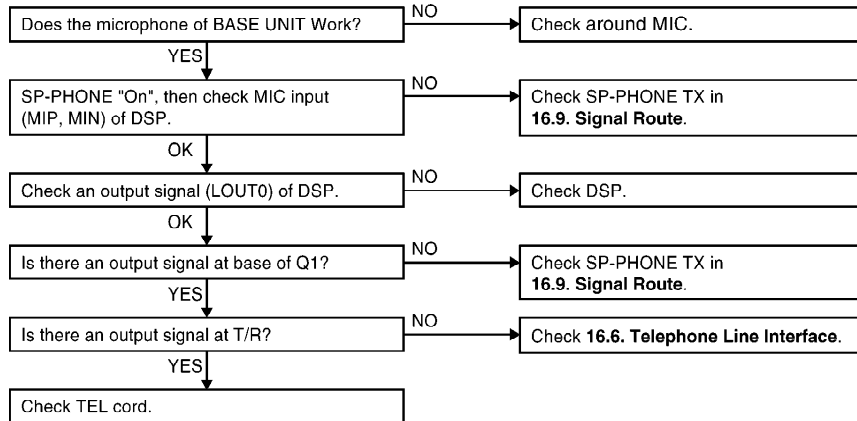
Note:

Flash Memory is IC300.

DSP is IC201.

11.5. Check Sp-phone Transmission

BASE UNIT



Cross Reference:

[Telephone Line Interface \(\)](#)

[Signal Route \(\)](#)

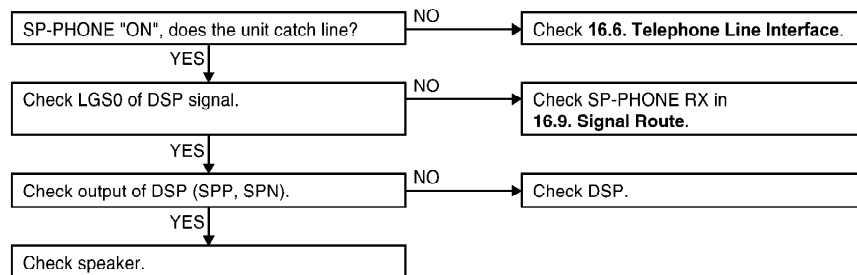
Note:

Flash Memory is IC300.

DSP is IC201.

11.6. Check Sp-phone Reception

BASE UNIT



Cross Reference:

[Telephone Line Interface \(\)](#)

[Signal Route \(\)](#)

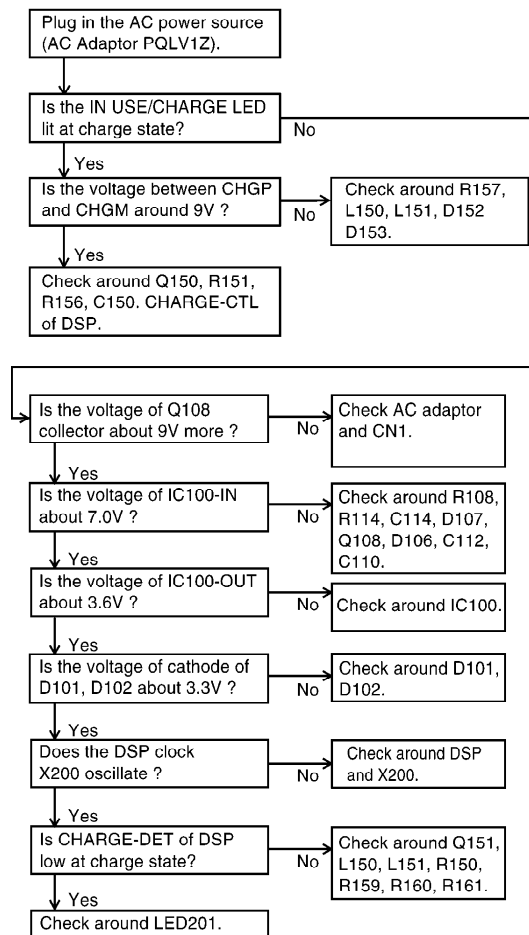
Note:

Flash Memory is IC300.

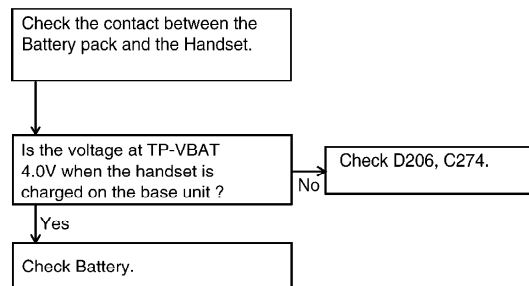
DSP is IC201.

11.7. Check Battery Charge

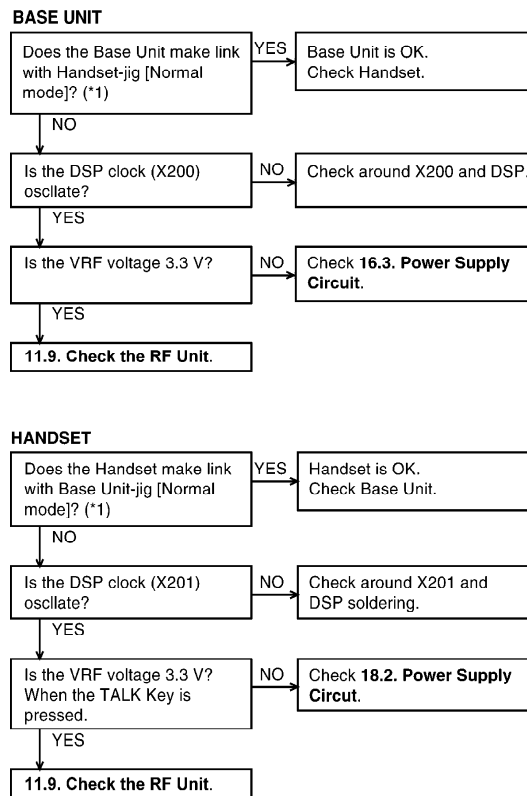
BASE UNIT



HANDSET



11.8. Check Link



Cross Reference:

[Check the RF Unit \(\)](#)
[Power Supply Circuit \(\)](#)
[Power Supply Circuit \(\)](#)

Note:

Base Unit
Flash Memory is IC300.
DSP is IC201.

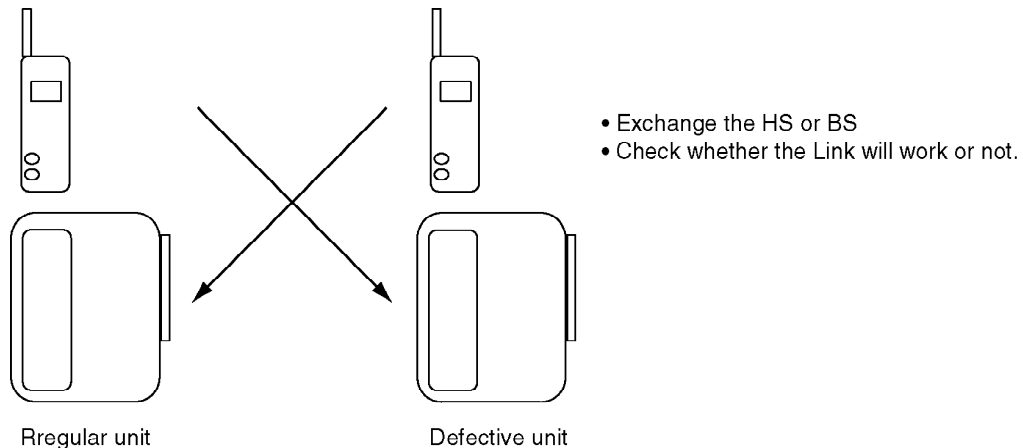
Handset
EEPROM is IC202.
DSP is IC201.

11.9. Check the RF Unit

11.9.1. Defective Unit Check

The defective unit should be checked using the HS of Regular unit (working) and BS of Regular unit (working). Both* of Regular unit (working) are required as the defect may be either in the handset or the base of the defective unit. For a defective BASE UNIT, place HS of Regular unit

(working) on the cradle of the unit and check to see that the handset links with the base. To confirm that they do link, lift handset off the cradle and press TALK button. A beep is heard and in use/charge LED's of the base unit should turn on. For a defective HANDSET UNIT, place HS on the cradle of the BS of Regular unit (working) and check to see that the HS links with the base. Again, press TALK button. A beep is heard and in use/charge LED's of the BS of Regular unit (working) should turn on.



See [RF Check Flowchart \(\)](#).

See [Check Table for RF Block \(\)](#).

Note:

*KX-TG2257 with marks HS JIG/BS JIG can be used only for troubleshooting. However, regular production set also can be used as a JIG.

11.9.2. Converting a Regular Production Unit to a JIG

Both base unit and handset unit have two modes: TEST POWER LOW mode and NORMAL POWER mode even a Regular production unit.

Each unit can be used as a JIG by changing the original NORMAL POWER mode to TEST POWER LOW mode.

- NORMAL POWER mode.

In this mode both base unit and handset unit can be used as a regular set.

- TEST POWER LOW mode, when production unit has been changed into a jig and will be used to check RF link.

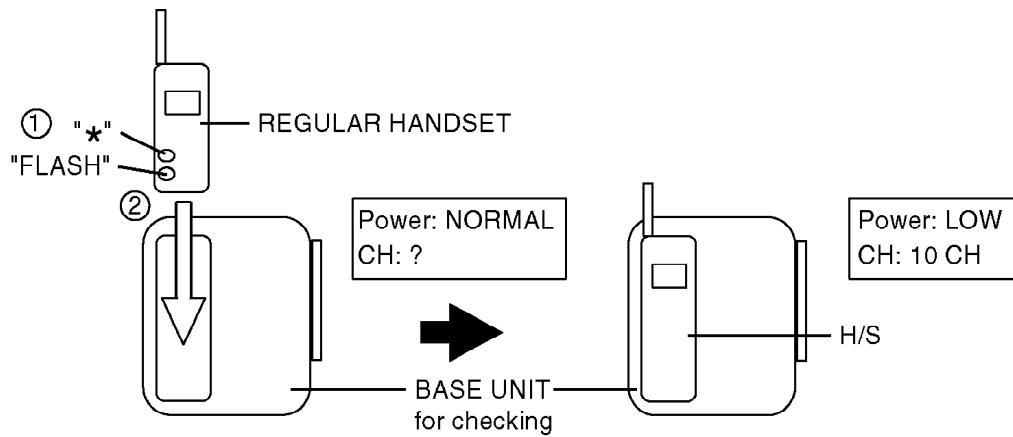
In this mode it is for checking if the sensitivity of RF block for both base unit and handset unit are good or not. Procedure as follows to enter this mode.

(1) Press "FLASH" and "☒" of the handset simultaneously, and keep it (10CH is taken for example).

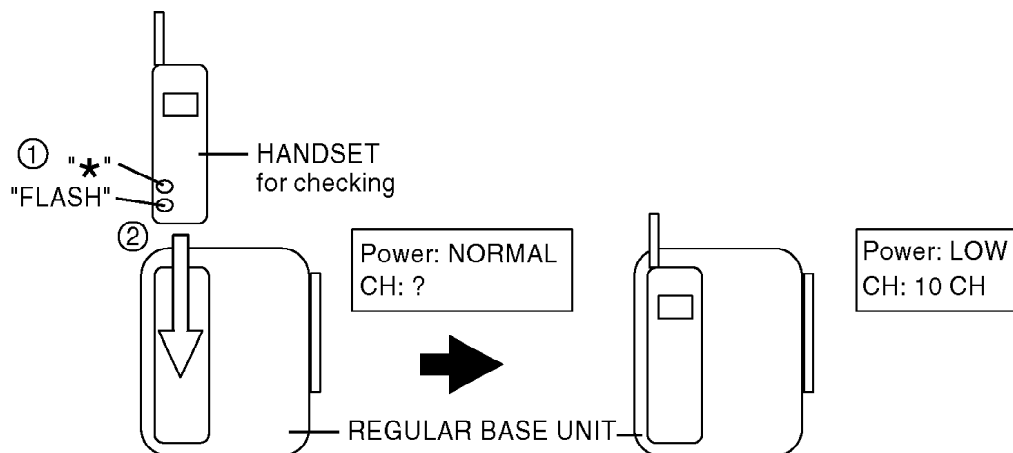
(2) Place the handset unit on the cradle of the base unit. (A long beep sounds, and the display is not changed.)

As shown in below a) HANDSET, b) BASE UNIT

a) HANDSET



b) BASE UNIT



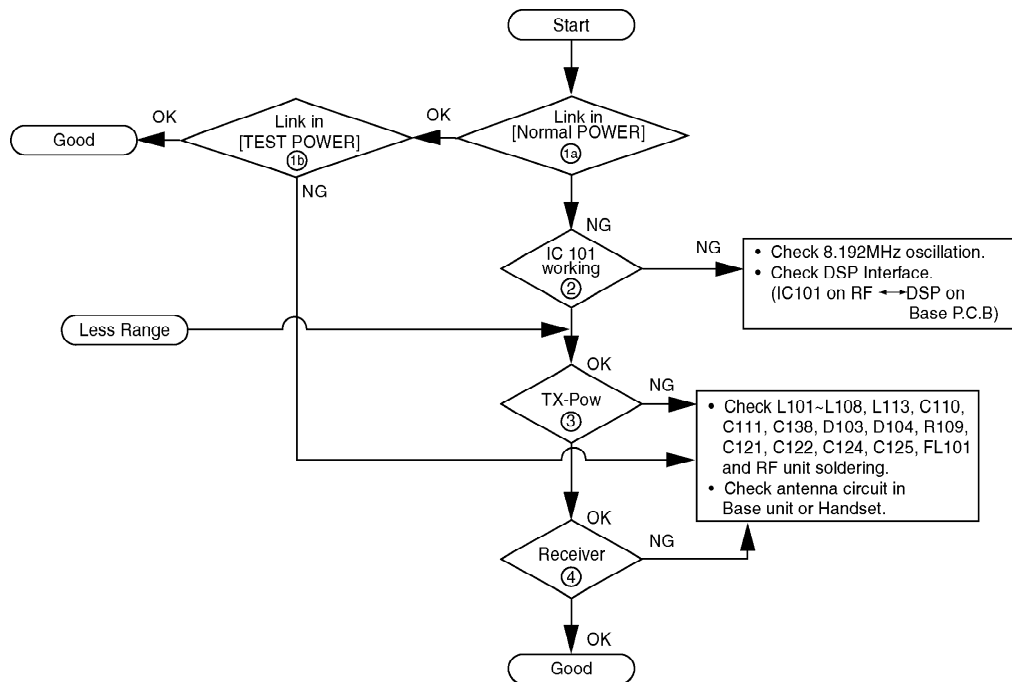
A short beep followed by a long beep is heard. This indicates the unit is in TEST POWER LOW mode. Once in TEST POWER LOW mode, to return the unit to the original NORMAL POWER mode, press 2, 5, 8, 0 simultaneously while the handset unit is in stand-by (not in use, not charging). A long beep is heard. Then disconnect the battery from the handset. Reconnect the battery and place the handset on the cradle to exchange security codes. A single beep is heard.

Note:

You can check the other channels as follows, if need.

Fixation CH	Figure 1	
CH	POWER	making key
1CH	“LOW“	"FLASH" + "1"
2CH	“LOW“	"FLASH" + "2"
3CH	“LOW“	"FLASH" + "3"
4CH	“LOW“	"FLASH" + "4"
5CH	“LOW“	"FLASH" + "5"
6CH	“LOW“	"FLASH" + "6"
7CH	“LOW“	"FLASH" + "7"
8CH	“LOW“	"FLASH" + "8"
9CH	“LOW“	"FLASH" + "9"
10CH	“LOW”	"FLASH" + "☒" ← the above case
11CH	“LOW“	"FLASH" + "0"
12CH	“LOW“	"FLASH" + "#"
13CH	“LOW“	"REDIAL" + "1"
14CH	“LOW“	"REDIAL" + "2"
15CH	“LOW“	"REDIAL" + "3"
16CH	“LOW“	"REDIAL" + "4"
17CH	“LOW“	"REDIAL" + "5"
18CH	“LOW“	"REDIAL" + "6"
19CH	“LOW“	"REDIAL" + "7"
20CH	“LOW“	"REDIAL" + "8"
21CH	“LOW“	"REDIAL" + "9"
22CH	“LOW“	"REDIAL" + "☒"
23CH	“LOW“	"REDIAL" + "0"
24CH	“LOW“	"REDIAL" + "#"
25CH	“LOW“	"OFF" + "☒"
26CH	“LOW“	"OFF" + "#"
1CH	“NORMAL“	"OFF" + "1"
4CH	“NORMAL“	"OFF" + "2"
7CH	“NORMAL“	"OFF" + "3"
10CH	“NORMAL“	"OFF" + "4"
13CH	“NORMAL“	"OFF" + "5"
14CH	“NORMAL“	"OFF" + "6"
17CH	“NORMAL“	"OFF" + "7"
20CH	“NORMAL“	"OFF" + "8"
23CH	“NORMAL“	"OFF" + "9"
26CH	“NORMAL“	"OFF" + "0"

11.9.3. RF Check Flowchart



①a)~④: Details of confirmation items are following in “**Check Table for RF Block ()**”.

Note:

DSP is IC201. (for Base Unit)

DSP is IC201. (for Handset)

Both of RF Blocks for Handset and Base Unit are same.

11.9.4. Check Table for RF Block

No	Item		BS (Base unit) (*1)	HS (Handset) (*1)
1a.	Link confirmation [NORMAL POWER]	Procedure	1. Put "HS (working)" on BS. 2. Set MODE to [NORMAL POWER] of "HS (working)". 3. Press [TALK] key of "HS (working)" to establish link.	1. Put HS on "BS (working)". 2. Set MODE to [NORMAL POWER] of "HS (working)". 3. Press [TALK] key of "HS" to establish link.
1b.	Link confirmation [TEST POWER] for confirmation the sensitivity of RF Block	Procedure	1. Change MODE to [TEST POWER] of "HS (working)". 2. Press [TALK] key of "HS (working)" to establish link. 3. Confirm the suspicious BS links to HS (working) with approximately the same distance from BS (working).	1. Change MODE to [TEST POWER] of "HS (working)". 2. Press [TALK] key of "HS" to establish link. 3. Confirm the suspicious HS links to BS (working) with approximately the same distance from HS (working).
2	IC101 working confirmation	Procedure	1. Set Test-mode Just entering to test mode.(*3) 2. Confirm oscillate signal of RF UNIT (8.192 MHz at OSC). (*5)	1. Set Test-mode Just entering to test mode.(*3) 2. Confirm oscillate signal of RF UNIT (8.192 MHz at OSC). (*6)
		Check point	1. Check Xtal oscillator at Q260 - C of the base unit. 2. Check DSP interface(IC101 ↔ DSP/BS) (*4).	1. Check Xtal oscillator at Q204 - C of the handset. 2. Check DSP interface(IC101 ↔ DSP/HS) (*4).
3	TX Power confirmation	Procedure	1. Put RF wire to ANT and ANT_GND (See Base Unit Reference Drawing). Connect this wire to the Spectrum Analyzer. 2. Set Test-mode. (*7) 3. Confirm TX power level within +11±5dBm (*2)	1. Put RF wire to ANT and ANT_GND (See Handset Reference Drawing). Connect this wire to the Spectrum Analyzer. 2. Set Test-mode. (*8) 3. Confirm TX power level within +11±5dBm (*2)
		Check point	1. Check L101 ~ L108, L113, C110, C111, C138, D103, D104, R109, C121, C122, C124, C125, FL101 soldering. 2. Check Antenna in BS.	1. Check L101 ~ L108, L113, C110, C111, C138, D103, D104, R109, C121, C122, C124, C125, FL101 soldering. 2. Check Antenna in HS.
4	Receiver confirmation	Procedure	1. Put "HS (working)" on BS. 2. Set MODE to [NORMAL POWER] of "HS (working)". 3. Press [TALK] key of "HS (working)" to establish link. 4. Change MODE to [TEST POWER] of "HS (working)". 5. Press [TALK] key of "HS (working)" to establish link. Confirm the suspicious BS links to HS (working) with approximately the same distance from BS (working).	1. Put HS on "BS (working)". 2. Set MODE to [NORMAL POWER] of "HS (working)". 3. Press [TALK] key of "HS" to establish link. 4. Change MODE to [TEST POWER] of "HS (working)". 5. Press [TALK] key of "HS" to establish link. Confirm the suspicious HS links to BS (working) with approximately the same distance from HS (working).
		Check point	1. Check C115, C114, L111, C118 soldering. 2. Check Antenna in BS.	1. Check C115, C114, L111, C118 soldering. 2. Check Antenna in HS.

(1*) BS : Base unit which is checked.

HS : Handset unit which is checked.

BS (working) : Base unit which is working.

HS (working) : Handset unit which is working.

(*2)<Spectrum analyzer setting>

SPAN: 10MHz

VBW, RBW: 1MHz

SWEEP: 1sec.

(*3)See [TEST MODE](#) ().

(*4) See [RF-DSP interface signal wave form](#) ().
See [CIRCUIT BOARD \(Base Unit\)](#) ().
See [CIRCUIT BOARD \(Handset\)](#) ().
(*5) See [Base Unit Reference Drawing](#) ().
(*6) see [Handset Reference Drawing](#) ().
(*7) see [Test mode flow chart for Base Unit](#) ().
(*8) see [Test mode flow chart for Handset](#) ().

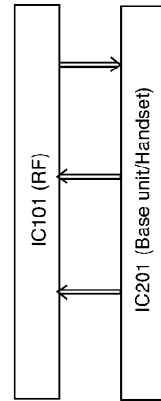
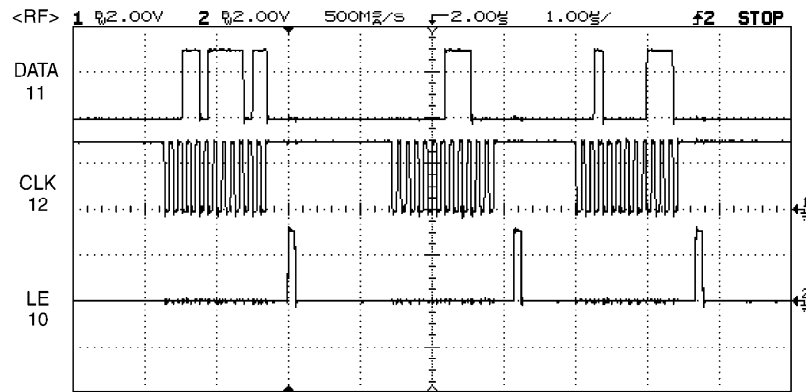
Note:

DSP is IC201. (for Base Unit)

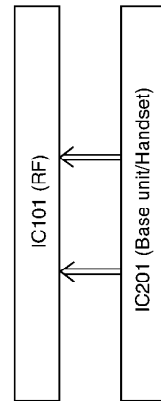
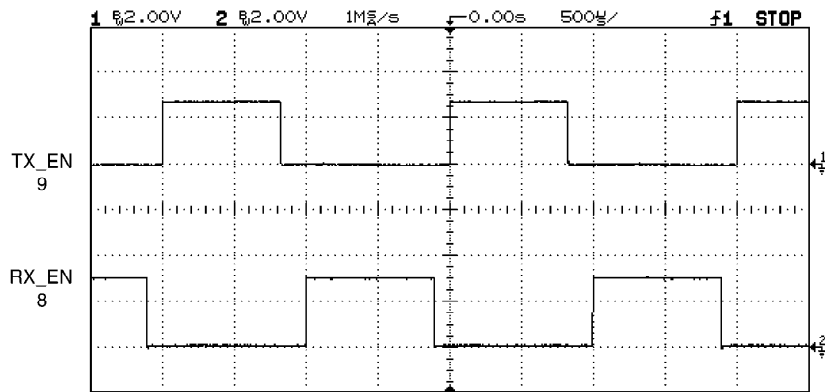
DSP is IC201. (for Handset)

11.9.5. RF-DSP interface signal wave form

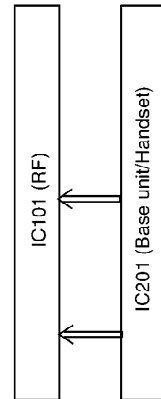
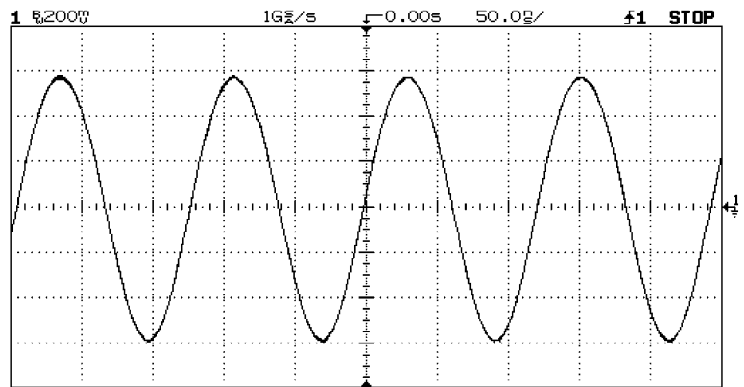
(1) Serial control line
<Standby mode>



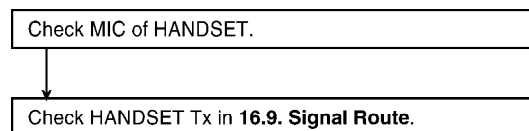
(2) Control line <Talk mode>
<Tx & Rx Power SW>



<Reference clock 8.192MHz>

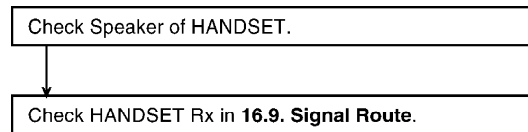


11.10. Check Handset Transmission



Cross Reference:
Signal Route ().

11.11. Check Handset Reception



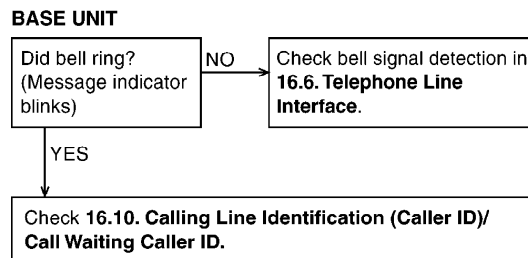
Cross Reference:

[Signal Route](#) ().

Note:

When checking the RF UNIT, Refer to [Check the RF Unit](#) ()

11.12. Check Caller ID



Cross Reference:

[Telephone Line Interface](#) ().

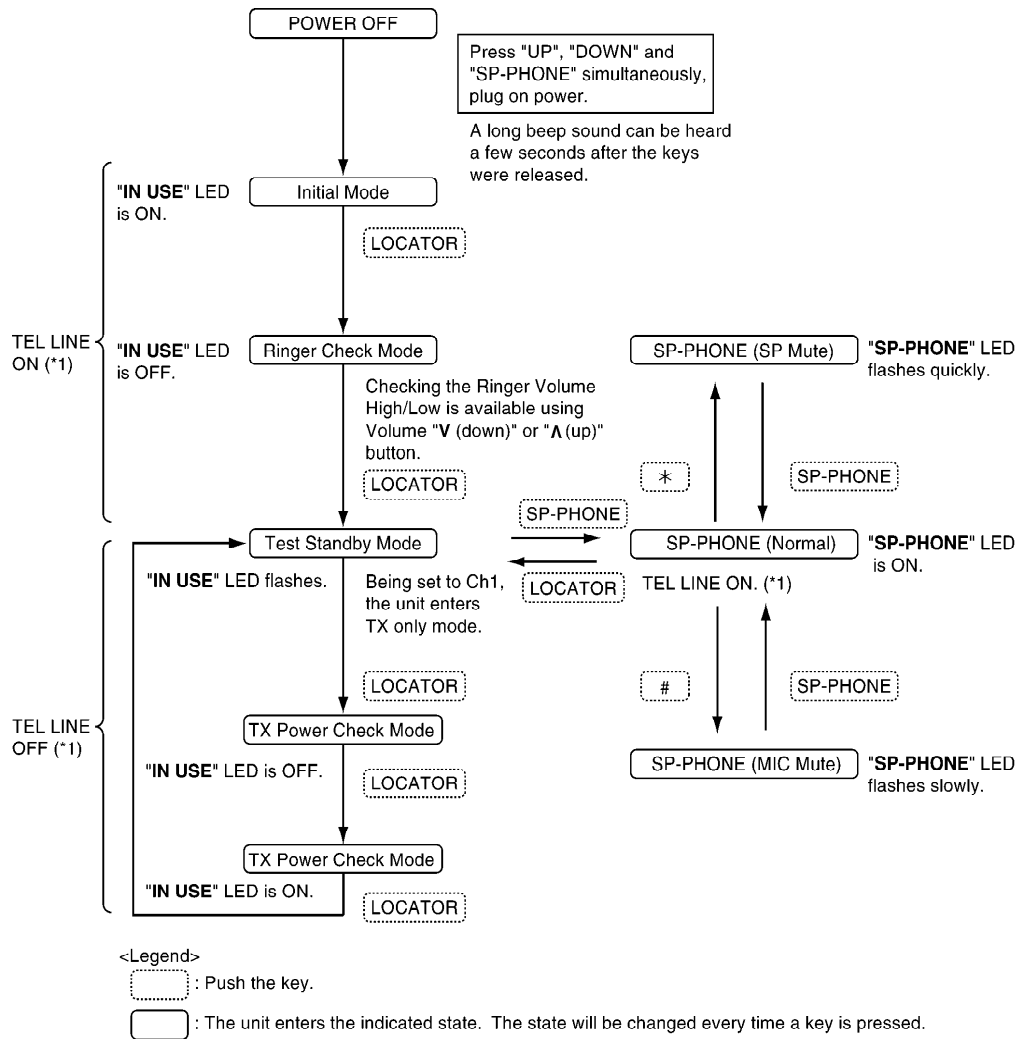
[Calling Line Identification \(Caller ID\)/Call Waiting Caller ID](#) ().

Note:

- Make sure the format of the Caller ID or Call Waiting Caller ID service of the Telephone company that the customer subscribed to.
- Also we recommend to confirm that the customer is really a subscriber of the service.

12. TEST MODE

12.1. Test mode flow chart for Base Unit

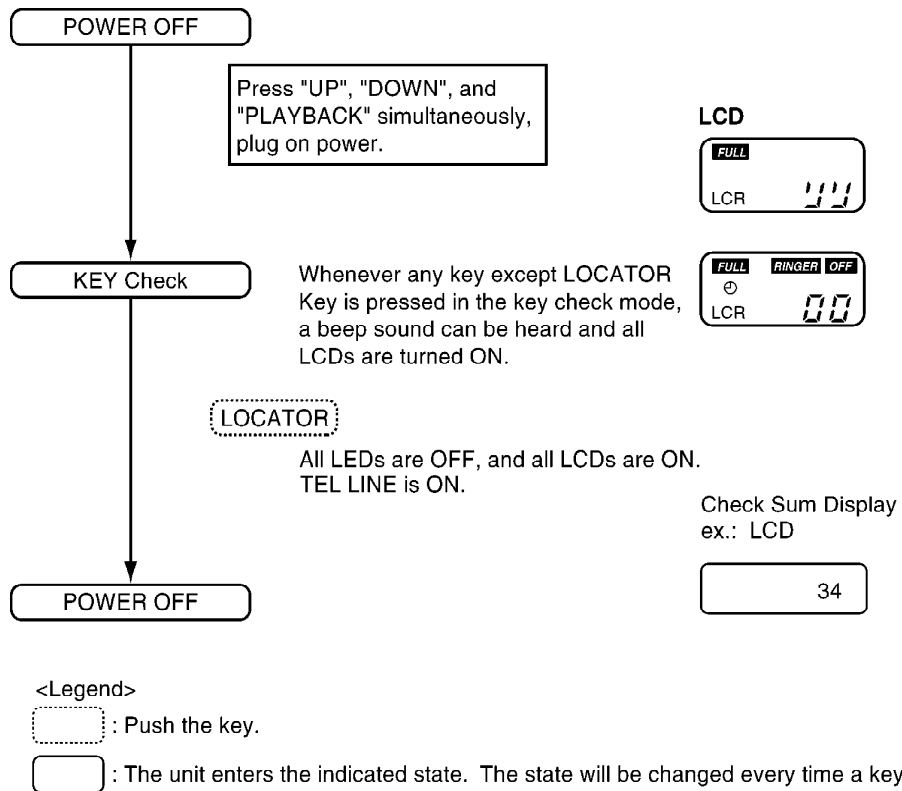


(*1) It shows whether the telephone line is connected or not.

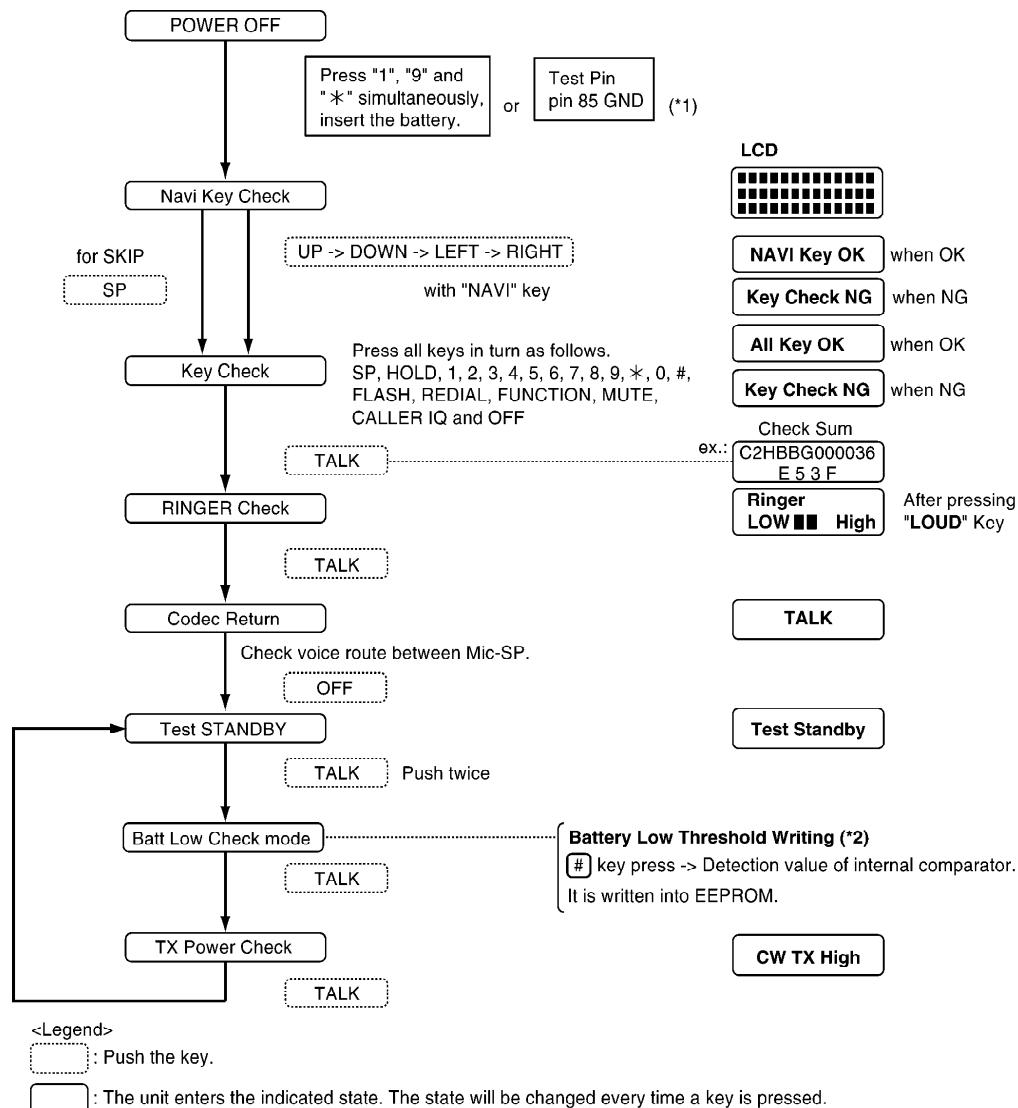
-ON: OFF HOOK.

-OFF: ON HOOK

12.2. TAM Test mode flow chart



12.3. Test mode flow chart for Handset



(*1) See [Handset Reference Drawing \(\)](#).---Should return to OPEN after entering the Test mode.

(*2) See [Adjustment Battery Low Detector Voltage \(\)](#).

12.4. X201 Check

The confirmation is made under the "TX Power Check" mode of TEST MODE.

Equipment: Frequency counter

TP for measurement: TP_ANT

Measure range: 2472.64550 MHz $\pm$ 5 kHz (1ch) at Test Standby mode in **TEST MODE ()**.

12.5. Adjustment Battery Low Detector Voltage

After replacing handset's DSP (IC201), Re-writing Battery Low voltage to EEPROM is required.

<How to re-write>

1. Set 3.9V for DC power supply.
2. Enter the test mode (Refer to [Test mode flow chart for Handset \(\)](#))
3. Follow to "Batt Low Check" mode..... (CW Tx High is displayed on LCD)
4. Set 3.5V for DC power supply.

Note: Check voltage at battery connector, because some voltage drop is happened, using long or thin cable.

5. Press “#” key to write voltage value in EEPROM.
6. Turn power off. Then this value is available.

12.6. Base Unit Reference Drawing

When connecting the Simulator and Equipments for checking, please refer to below.

Note: (*2) is referred to No.2 of [Check Table for RF Block](#) ()

12.7. Handset Reference Drawing

When connecting the Simulator and Equipments for checking, please refer to below.

Note: (*2) is referred to No.2 of [Check Table for RF Block](#) ()

12.8. Frequency Table

Channel	TX/RX Frequency (MHz)	Channel	TX/RX Frequency (MHz)
1	2472.70400	21	2415.36100
2	2473.21425	22	2415.87125
3	2474.75150	23	2417.40850
4	2475.26175	24	2417.91875
5	2475.77525	25	2418.43225
6	2476.28550	26	2418.94250
7	2476.80225	27	2429.18325
8	2477.31250	28	2429.69675
9	2477.82600	29	2430.20700
10	2478.33625	30	2430.72050
11	2478.84975	31	2431.23075
12	2479.36000	32	2431.74425
13	2479.87350	33	2432.25450
14	2411.77625	34	2433.79175
15	2412.28975	35	2434.30200
16	2412.80000	36	2434.81550
17	2413.31350	37	2435.32575
18	2413.82375	38	2435.83925
19	2414.33725	39	2436.34950
20	2414.84750		

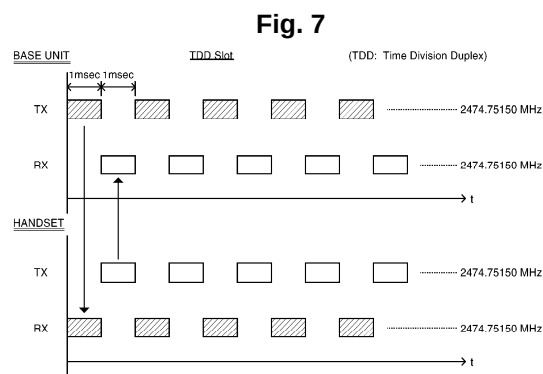
13. DESCRIPTION

13.1. Frequency

The frequency range of 2411.77625 MHz ~ 2479.87350 MHz is used. Transmitting and receiving channel between base unit and handset is same frequency. Refer to the Frequency Table.

13.2. Time Division Duplex (TDD) operation

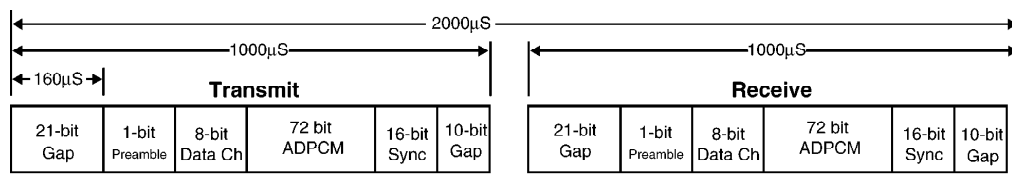
Transmission/reception between the base unit and handset is performed by time-sharing as shown in Fig. 7. 1 slot time of transmission and reception is 1mS. Same frequency is used in transmitting and receiving. The figure shows an example; the frequency of 3ch is used in transmitting between the base unit and handset.



13.2.1. TDD Frame Format

The TDD frame is 2mS in length. Each subframe contains 128 bits of 7.8 μ S duration. Each subframe consists of the following four fields:

- A 1-bit Preamble field
- An 8-bit Data Channel field
- An 16-bit Sync Word
- A 72-bit ADPCM Payload (Parity 8-bit)



13.3. Signal Flowchart in the Whole System

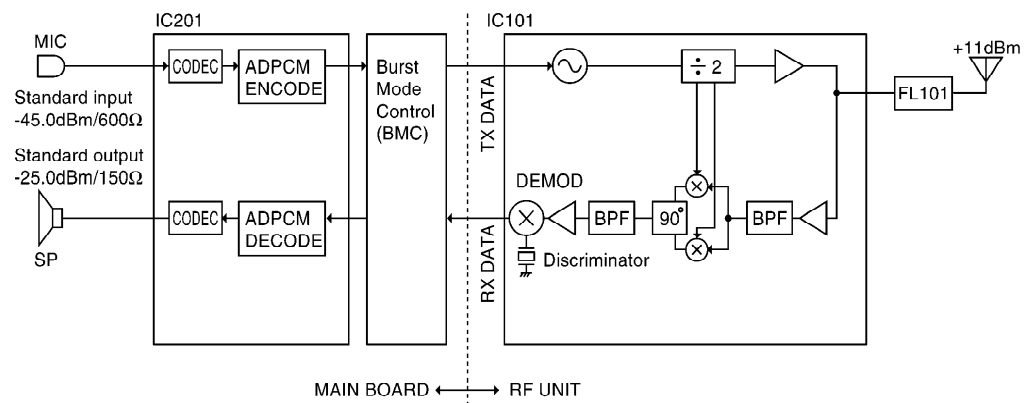
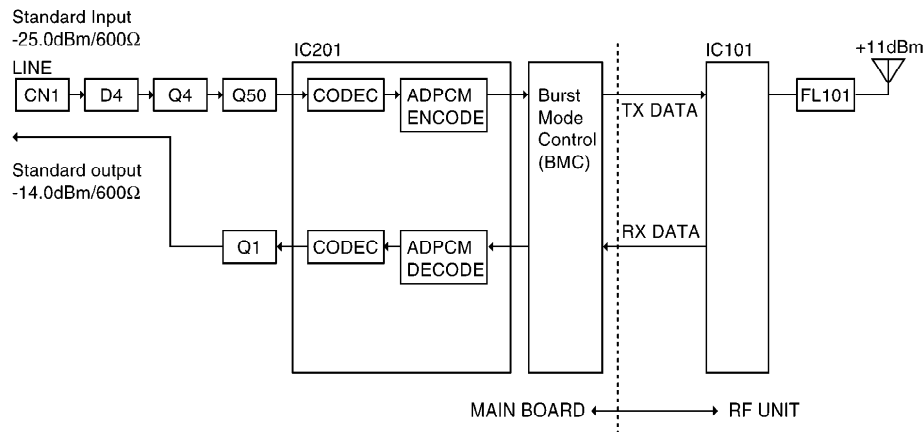
Reception

CN1 of the base unit is connected to the TEL line, and the signal is input through the bridge diode D4. While talking the relay (Q4) is turned ON and amplified at the amplifiers Q50, then led to DSP (IC201). DSP generates ADPCM signal. The ADPCM signal is input to RFIC (IC101) of RF UNIT. RFIC outputs FSK modulated RF signal. The RF signal is passed through filter (FL101) to

be transmitted from the antenna. As for the handset, RF signal from the antenna is input to RFIC passing through filter (FL101) then input to DSP (IC201). DSP performs ADPCM decoding to convert the signal into the voice signal, then it is output to the speaker.

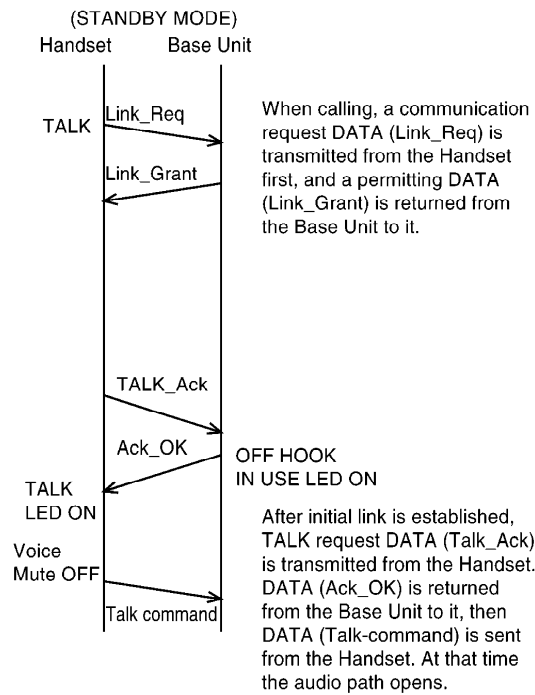
Transmission

The voice signal input from the microphone is led to DSP (IC201). The DSP generates ADPCM signal. As well as the reception, it is converted into the RF signal by RFIC (IC101). Passing through filter (FL101), it is transmitted from the antenna. As for the base unit, RF signal from the antenna is input to RFIC (IC101) passing through filter (FL101) then input to DSP (IC201). DSP performs ADPCM decoding to convert the signal into the voice signal. The voice signal is amplified at the TX amplifier (Q1), then output to the TEL line (CN1) through the relay (Q4) and bridge (D4).

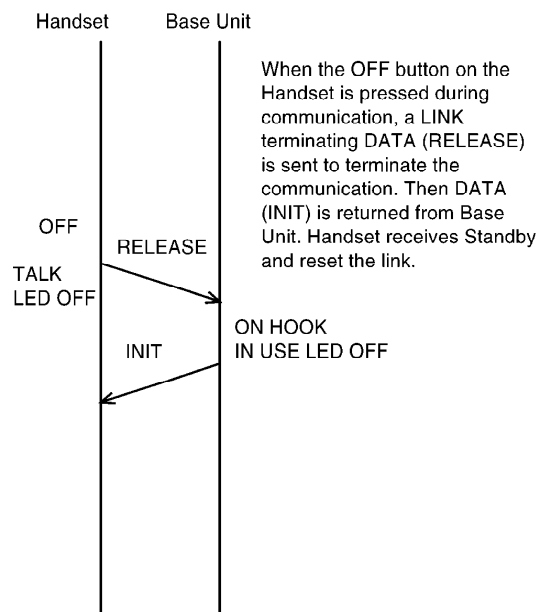


14. EXPLANATION OF BBIC (Base Band IC) DATA COMMUNICATION

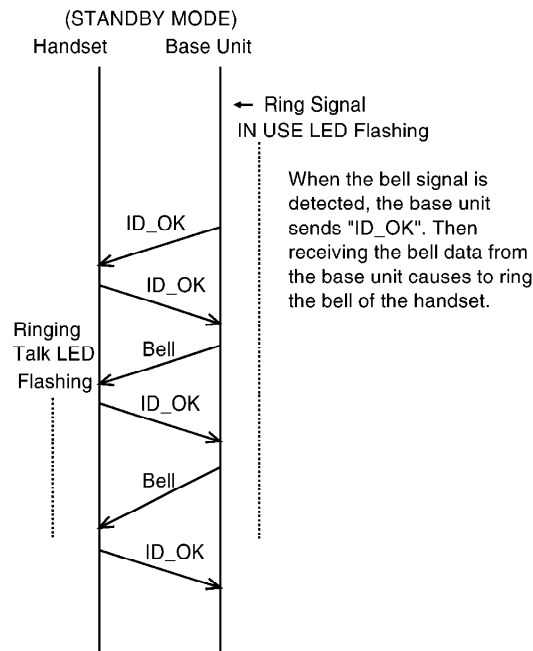
14.1. Calling



14.2. To Terminate Communication



14.3. Ringing



14.4. Ports for Transmitting and Receiving of Data

Handset: (IC201)

Transmitting Pin 57 (TXO), Pin 64 (TXEN)

Receiving Pin 66 (RXI), Pin 63 (RXEN)

Base Unit: (IC201)

Transmitting Pin 57 (TXO), Pin 64 (TXEN)

Receiving Pin 66 (RXI), Pin 63 (RXEN)

15. BLOCK DIAGRAM (Base Unit)

16. CIRCUIT OPERATION (Base Unit)

General Description:

(DSP, Flash Memory) is a digital speakerphone/speech/signal processing system that implements all the functions of speech compression, record and playback, and memory management required in a digital telephone answering machine.

The DSP system is fully controlled by a host processor DSP. The host processor provides activation and control of all that functions as follows.

16.1. DSP (Digital Speech/Signal Processing: IC201)

- Voice Message Recording/Play back

The DSP system use a proprietary speech compression technique to record and store voice message in FLASH MEMORY.

An error correction algorithm is used to enable playback of these messages from the FLASH MEMORY.

- DTMF Detection/Generator

The DTMF detection is implemented by the DSP system in software. The DTMF detection is performed during Record, Playback, and Line Monitoring modes of operation. When the DTMF data from the Handset is received, the DTMF signal is output.

- **Synthesized Voice (Pre-recorded message)**

The DSP implements synthesized Voice, utilizing the built in speech detector and an FLASH MEMORY, which stored the vocabulary.

- **Caller ID and Call Waiting CID demodulation**

The DSP implements monitor and demodulate the FSK signals that provide CID information from the Central Office.

- **Analog Switching**

The voice signal from telephone line is transmitted to the speaker or the voice signal from speakerphone microphone is transmitted to the Telephone line, etc. They are determined by the signal path route operation of voice signal.

- **Block Interface Circuit**

RF unit, LED, Key scan, Speaker, Microphone, Telephone line, LCD

16.2. Flash Memory (IC300)

Following information data is stored.

- **Voice signal**

ex: Pre-recorded Greeting message, Incoming message

- **Telephone number, etc.**

ex: Telephone Directory number, Caller ID data, ID code

- **Settings**

ex: message numbers, caller ID numbers, pulse tone dial

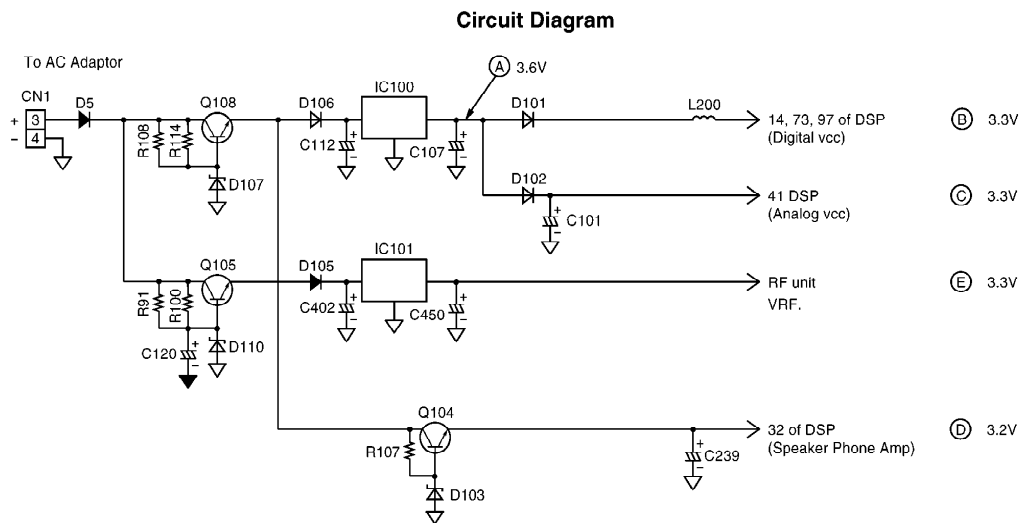
16.3. Power Supply Circuit

Function:

The power supply voltage from AC adaptor is converted to the desired voltage of each block.

Circuit Operation:

This unit supplies the voltage to each block as shown below.

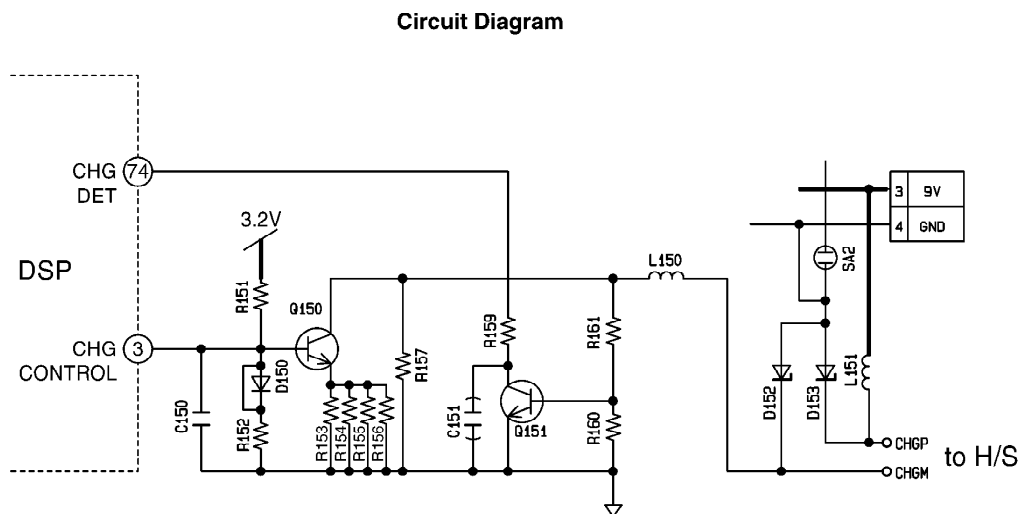


16.3.1. Charge Circuit

The voltage from the AC is supplied to the main charge circuits. Normal charge (90 mA) of maximum 20-hours is started soon after the Handset is placed on the base unit. Then it changes to trickle charge (20 mA on the average) to prevent from overcharging.

Normal charge : Q150 is ON

Trickle charge : Q150 is OFF



16.4. Reset Circuit

Function:

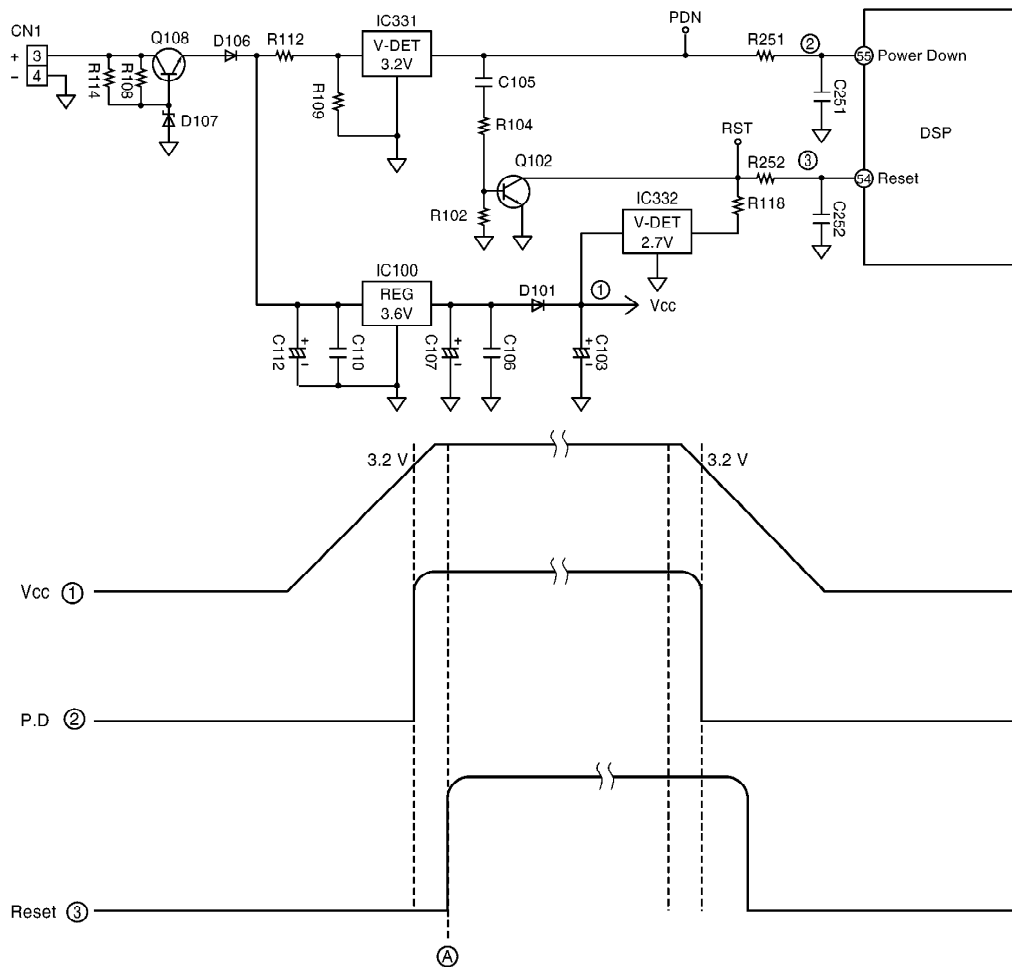
This circuit is used for to initialize the microcomputer when it incorporates an AC adaptor.

Circuit Operation:

When the AC Adaptor is inserted into the unit, then the voltage is shifted by IC100, D101 and power is supplied to the DSP.

The set can operate beyond point (A) in the circuit voltage diagram.

Circuit Diagram



16.5. Locator/Intercom Mode

1. When the base unit LOCATOR/INTERCOM button is pressed, a call monitor signal (intercom sound) is output from DSP (SPP, SPN). Thus a monitor tone is heard from the speaker.
2. At the same time, flashing of the IN USE/CHARGE (LED201) is obtained from DSP (INUSE-LED). This status is called "Intercom stand-by".
3. The receiving signal flows:
RF → DSP (SPP, SPN) → SP
4. The transmission signal flows:
MIC → C235, C236 → R213, R214 → DSP (MIN, MIP) → RF

16.6. Telephone Line Interface

Telephone Line Interface Circuit:

Function

- Bell signal detection
- ON/OFF hook and pulse dial circuit
- Side tone circuit
- Auto-disconnect circuit/Parallel connection detection circuit

Bell signal detection and OFF HOOK circuit:

In the idle mode, Q4 is open to cut the DC loop current and decrease the ring load. When ring voltage appears at the Tip (T) and Ring (R) leads (When the telephone rings), the AC ring voltage is transferred as follows:

T, R → L1, L2 → R30, R31 → C16, C17 → Q6 → DSP (BELL) [BELL]

When the CPU (DSP) detects a ring signal, Q4 turns on, thus providing an off-hook condition (active DC current flow through the circuit) and the following signal flow is for the DC line current.

T → D4 → Q4 → Q1 → R5 → D1 → D4 → L2 → POS1 → R [OFF HOOK]

ON HOOK Circuit:

Q4 is open, Q4 is connected as to cut the DC loop current and to cut the voice signal. The unit is consequently in an on-hook condition.

Pulse Dial Circuit:

DSP (RYL) turns Q4 ON/OFF to make the pulse dialing.

Side Tone Circuit:

Basically this circuit prevents the TX signal from feeding back to RX signal.

As for this unit, TX signal feed back from Q1 is canceled by the echo canceller of DSP.

Note: DSP is IC201.

See [CPU DATA \(Base Unit\)](#) ()

16.7. Auto Disconnect Circuit

Function:

This circuit is used to detect the fact that another telephone connected to the same line is OFF-HOOK while the unit is in a receiving status or OGM transmitting status.

Circuit Operation:

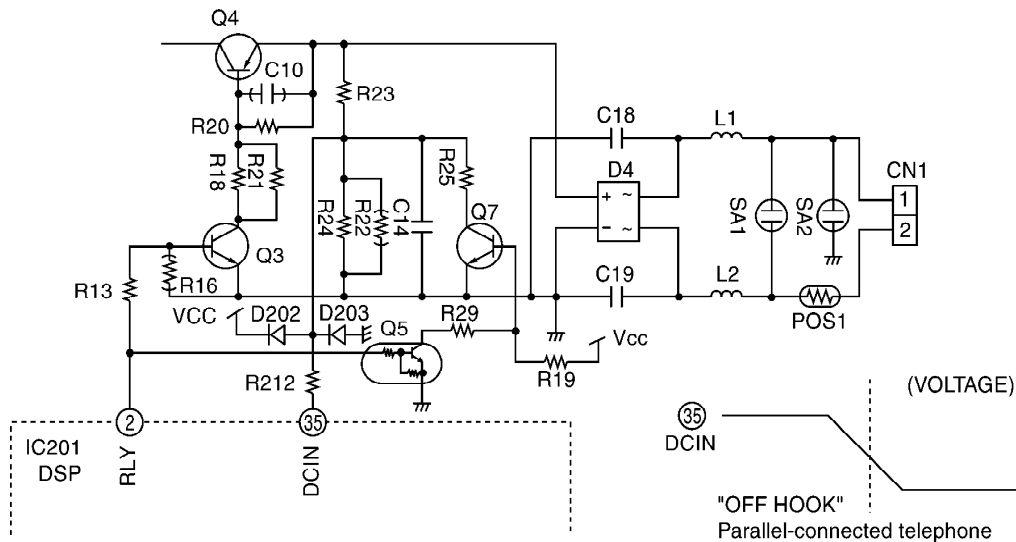
The voltage DSP (DCIN) is monitored. If a parallel-connected telephone is put into an OFF HOOK status, the presence/absence of a parallel connection is determined when the voltage changes by 0.2V or more.

When the set detects the parallel-connected telephone is OFF HOOK status, the line is disconnected.

Note: DSP is IC201.

See [CPU DATA \(Base Unit\)](#) ()

Circuit Diagram



You can enable or disable the Auto Disconnect function.

See [Check Record](#) ().

16.8. Parallel Connection Detect Circuit

Function:

In order to disable call waiting and stutter tone functions when using telephones connected in parallel, it is necessary to have a circuit that judges whether a telephone connected in parallel is in use or not. This circuit determines whether the telephone connected in parallel is on hook or off hook by detecting changes in the T/R voltage.

It is like an "Auto Disconnect Circuit".

Circuit Operation:

Parallel connection detection when on hook:

When on hook Q7 is ON, the voltage is monitored DSP (DCIN). There is no parallel connection if the voltage is 2.50 V or higher, while a parallel connection is deemed to exist if the voltage is lower.

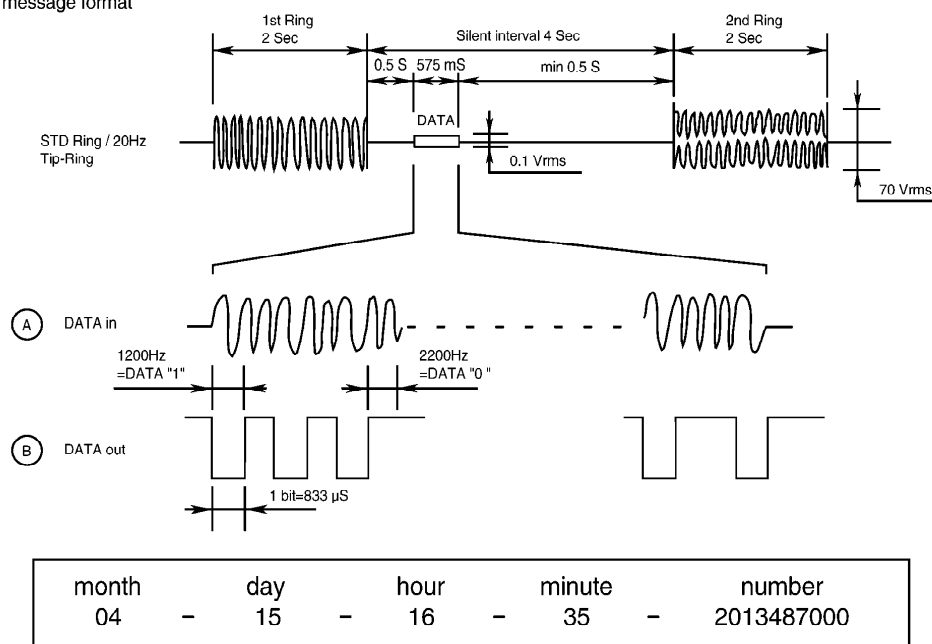
Parallel connection detection when off hook:

When off hook Q7 is OFF, the voltage is monitored DSP (DCIN); the presence/absence of a parallel connection is determined when the voltage changes by 0.2 V or more.

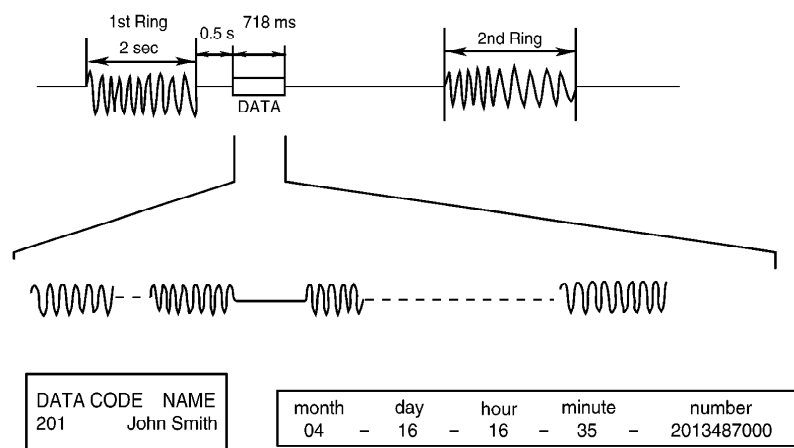
16.9. Signal Route

Each signal route is as follows.

● Single message format



● Plural message format



Call Waiting Caller ID

Calling Identity Delivery on Call Waiting (CIDCW) is a CLASS service that allows a customer, while off-hook on an existing call, to receive information about a calling party on a waited call. The transmission of the calling information takes place almost immediately after the customer is alerted to the new call so he/she can use this information to decide whether to take the new call.

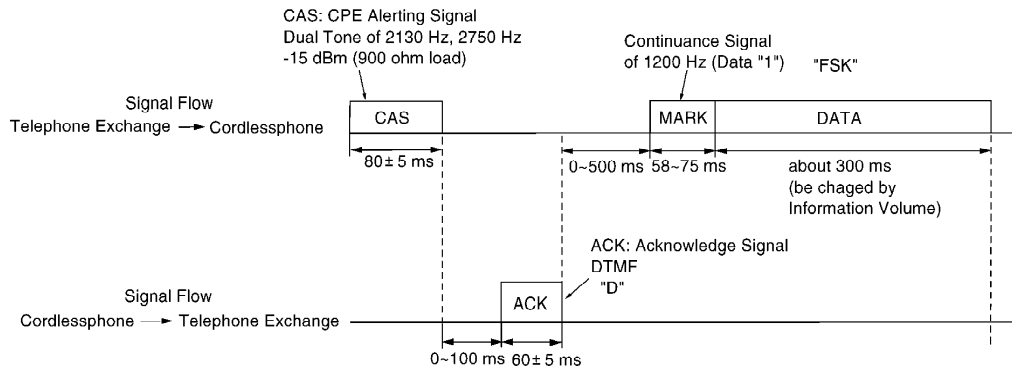
Function:

The telephone exchange transmits or receives CAS and ACK signals through each voice RX/TX route. Then FSK data and MARK data pass the following route.

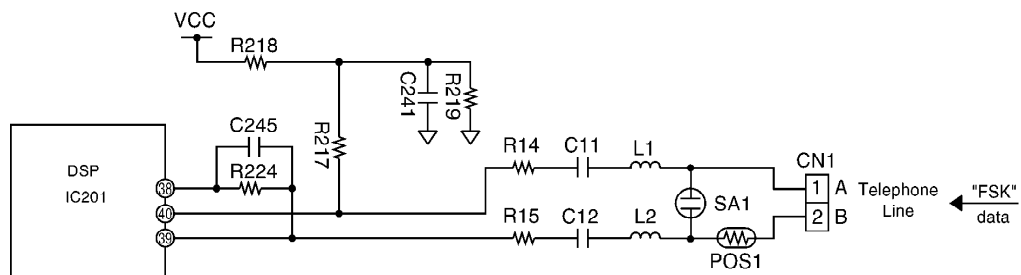
Telephone Line → CN1(A, B) → C11, C12 → R14, R15 → DSP (39~40).

. If the unit deems that a telephone connected in parallel is in use, ACK is not returned even if CAS is received, and the information for the second and subsequent callers is not displayed on the portable handset display.

Call Waiting Format



Circuit Diagram



17. BLOCK DIAGRAM (Handset)

18. CIRCUIT OPERATION (Handset)

18.1. Construction

The circuit mainly consists of DSP and RF unit as shown in the block diagram.

18.1.1. DSP:IC201

Function

- Battery Low, Power down detect circuit
 - Ringer Generation
 - Interface circuit
- RF unit, speaker, mic, LED, Key scan, LCD, Headset

18.1.2. RF unit

Mainly voice signal is modulated to RF, or it goes the other way.

18.1.3. EEPROM: IC202

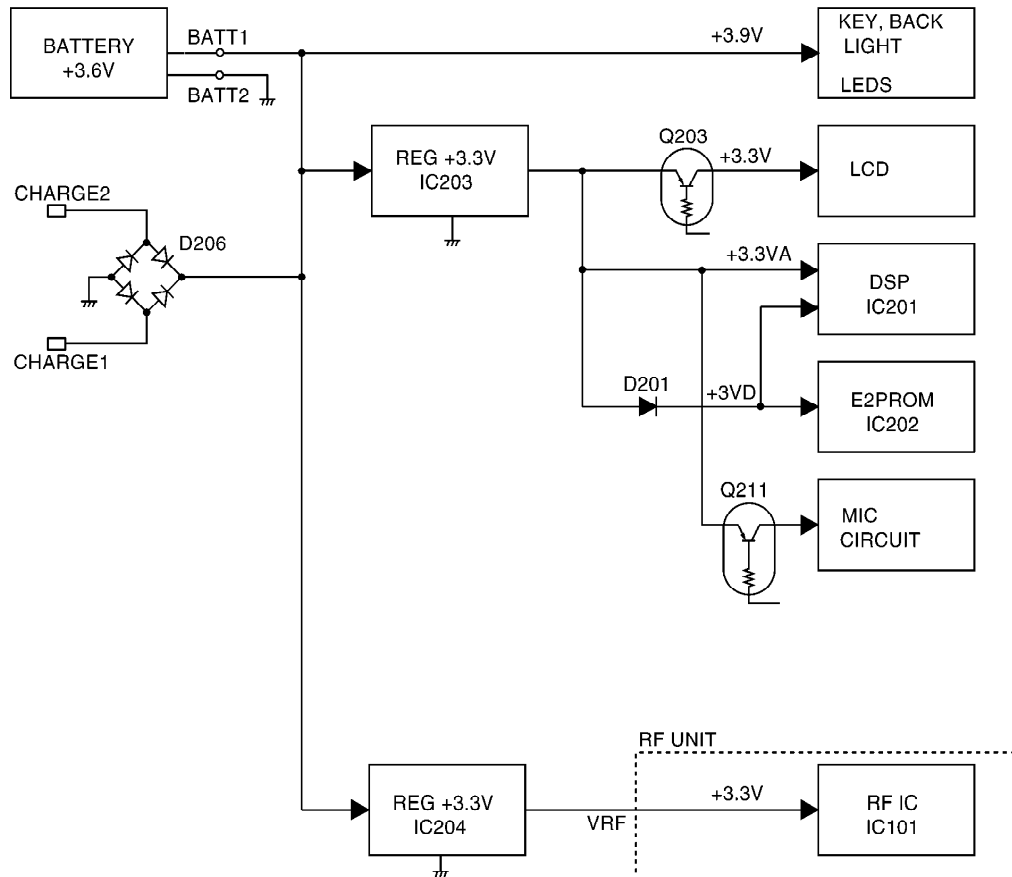
All setting data is stored.

ex: ID code, user setting (Flash Time, Tone/Pulse)

18.2. Power Supply Circuit

Voltage is supplied separately to each block.

Circuit Diagram (Handset Power)



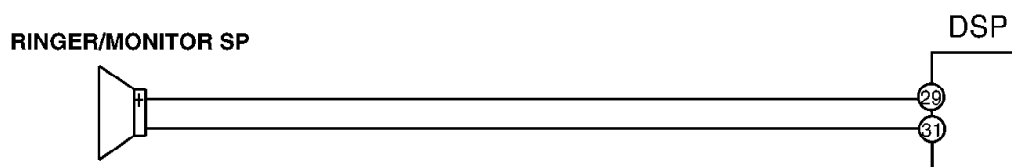
18.3. Charge Circuit

Ni-Cd battery is connected to (BATT+, BATT-). When the handset is put on the cradle of the base unit, the power is supplied from CHARGE1 and CHARGE2 terminals to charge the battery. Q207 detects the voltage of CHARGE1 and CHARGE2 terminals, then the handset makes ID code setting (*) with the base unit.

18.4. Ringer and Handset SP-Phone

DSP (29-31) → SP/RINGER

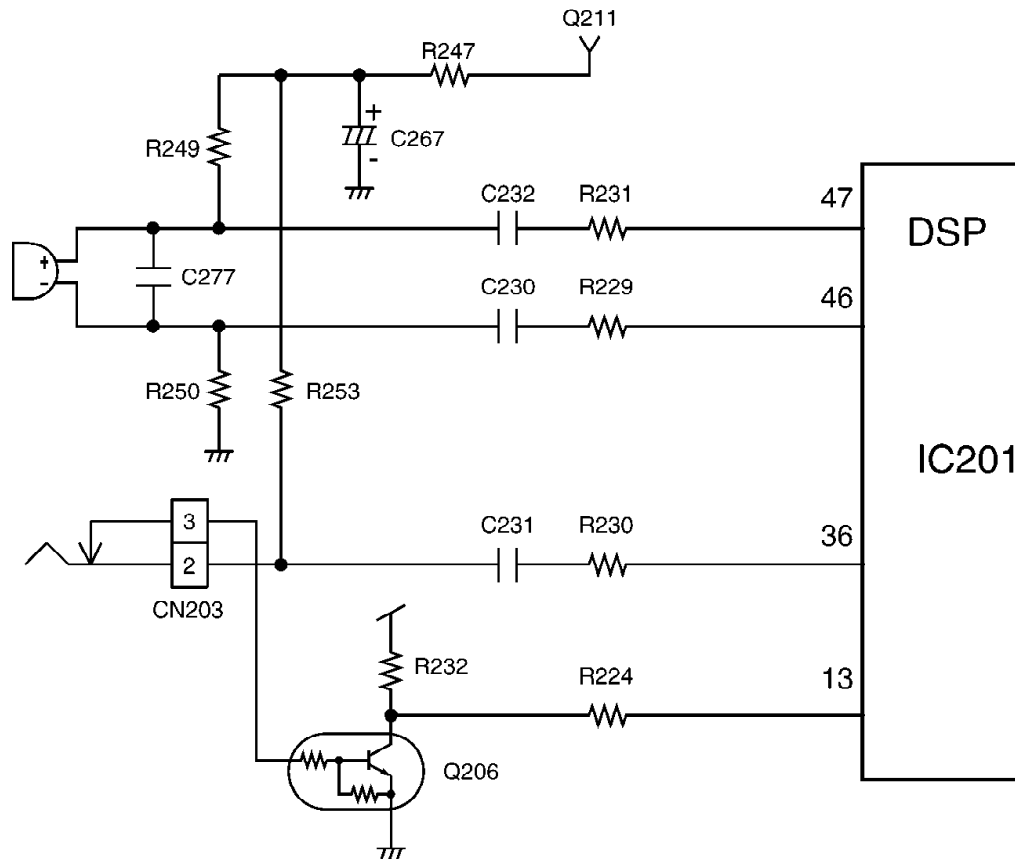
Circuit Diagram



18.5. Sending Signal

The voice signal from the microphone input to DSP (46-47). CN203 is the headphone jack. When the headphone is connected, the Q206 detect it. The input from the microphone of the handset (MIN, MIP) is cut and the microphone signal from the headphone is input to DSP (36). Also the power for the microphone is supplied from Q211, and the power is turned OFF on standby.

Circuit Diagram



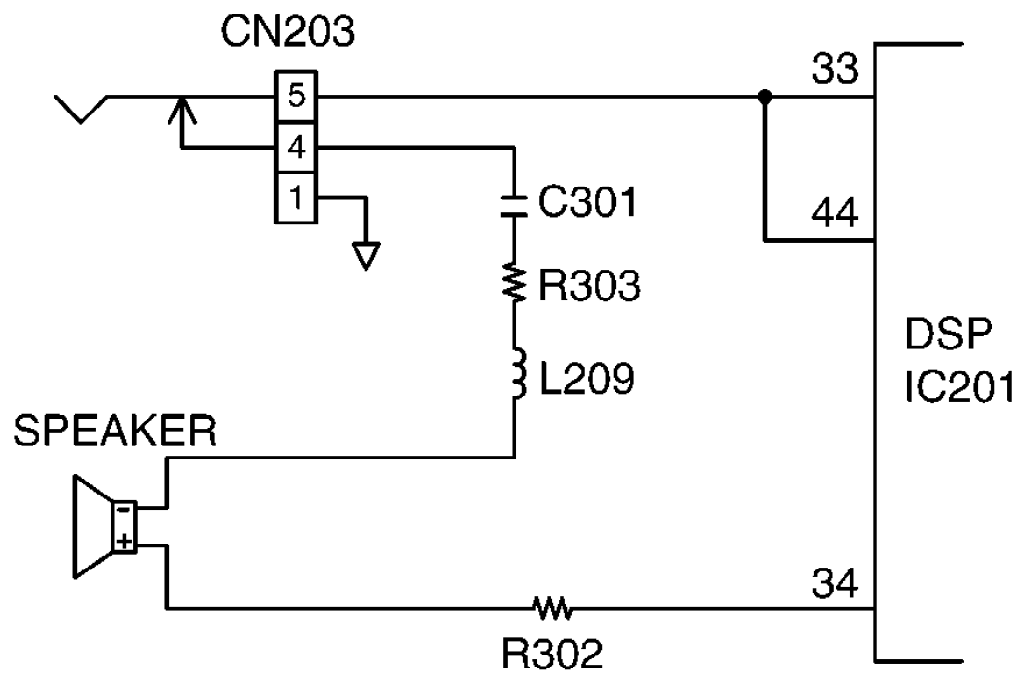
Note: DSP is IC201.

See [CPU DATA \(Handset\)](#) ().

18.6. Reception Signal

The voice signal from the base unit is output to DSP (33) (HSSOUT). This signal is led to the headset jack (CN203) and DSP (44) (HSMIP). The signal input to DSP (44) is inverted and output to DSP (34) (LOUTO). The signal through the headset jack is inverted, then output from DSP (34) to drive the speaker. When the headset is inserted to the jack, the voice signal is cut at the jack, so the sound does not come out from the speaker, but from the headset only.

Circuit Diagram



19. CPU DATA (Base Unit)

19.1. IC201

Pin	Description	I/O	High	High_Z	Low
1	LINE_SZ	D.O	On	--	Off
2	RLY	D.O	On	--	Off
3	CHAGEG_CTL	D.O	--	Charge	Non Charge
4	SEG3	D.O	--	--	Normal
5	SEG4	D.O	--	--	Normal
6	SEG5	D.O	--	--	Normal
7	SEG6	D.O	--	--	Normal
8	SEG7	D.O	--	--	Normal
9	SEG8	D.O	--	--	Normal
10	SEG9	D.O	--	--	Normal
11	SEG10	D.O	--	--	Normal
12	SEG11	D.O	--	--	Normal
13	SEG12	D.O	--	--	Normal
14	VCC	VCC	Vcc	--	--
15	GND	GND	--	--	GND
16	COM2	D.O	--	--	Normal
17	COM1	D.O	--	--	Normal
18	STB5	D.O	Active	Not	--
19	STB4	D.O	Active	Not	--
20	STB3	D.O	Active	Not	--
21	STB2	D.O	Active	Not	--
22	STB1	D.O	Active	Not	--
23	SIOD0	D.O			
24	SIOALE	D.O			
25	SIOCLK	D.O			
26	RESET	D.O	--	--	Normal
27	BELL	D.I	Off	--	On
28	GND	GND	--	--	GND
29	SPP	A.O	--	--	--
30	GNDPA	GND	--	--	GND
31	SPN	A.O	--	--	--
32	VCCPA	VCC	VCC	--	--
33	HSSPOUT	A.O	--	--	--
34	LOUT0	A.O	--	--	--
35	DCIN0	A.I	--	--	--
36	LIN0	A.I	--	--	--
37	LGS0	A.I	--	--	--
38	CIDO0	A.I	--	--	--
39	CIDIN0	A.I	--	--	--
40	CIDIPO	A.I	--	--	--
41	VCCA	VCC	VCC	--	--
42	DCIN1	A.I	--	--	--
43	GND A	GND	--	--	GND
44	HSMIP	A.I	--	--	--
45	VREF	A.O	--	--	--
46	MIN	A.I	--	--	--
47	MIP	A.I	--	--	--
48	DCIN2	A.I	--	--	--
49	GNDPLL	GND	--	--	GND
50	VCCPLL	VCC	VCC	--	--

Pin	Description	I/O	High	High_Z	Low
51	XOUT	A.O	--	--	--
52	XIN	A.I	--	--	--
53	GND	GND	--	--	GND
54	RSTN	D.I	Normal	--	Reset
55	PDN	D.I	Power On	--	Power Down
56	CE	D.O	Not	--	Active
57	TXOUT	D.O	High	--	Low
58	RXGAIN	D.I	HIGH_GAIN	--	LOW_GAIN
59	ALE	D.O	High	--	Low
60	CLE	D.O	High	--	Low
61	NC	D.O	--	--	Normal
62	RSTH	D.O	Normal	--	Wakeup
63	RXEN	D.O	Enable	--	Disable
64	TXEN	D.O	Enable	--	Disable
65	SHCTRL	D.O	High	--	Low
66	RXI	D.I	High	--	Low
67	UART_RX	D.I	High	--	Low
68	UART_TX	D.O	High	--	Low
69	INUSE_LED	D.O	--	Off	On
70	SP_LED	D.O	--	Off	On
71	Tr_Ctrl	D.O	STOP	--	Normal
72	GND	GND	--	--	GND
73	VCC	VCC	VCC	--	--
74	CHARGE_DET	D.I	Off Charge	--	On Charge
75	TCK	D.O			
76	TMS	D.O			
77	TDI	D.I			
78	TDO	D.O			
79	MSG_LED	D.O	--	Off	On
80	OPENLCR_LED	D.O	--	Off	On
81	WP	D.O	Not	--	Active
82	KIN6	D.I	Key In	--	Non
83	KIN5	D.I	Key In	--	Non
84	KIN4	D.I	Key In	--	Non
85	KIN3	D.I	Key In	--	Non
86	KIN2	D.I	Key In	--	Non
87	KIN1	D.I	Key In	--	Non
88	IO7	D.O	High	--	Low
89	IO6	D.O	High	--	Low
90	IO5	D.O	High	--	Low
91	IO4	D.O	High	--	Low
92	IO3	D.O	High	--	Low
93	IO2	D.O	High	--	Low
94	IO1	D.O	High	--	Low
95	IO0	D.O	High	--	Low
96	GND	GND	--	--	GND
97	VCC	VCC	VCC	--	--
98	RE	D.O	--	Not	Active
99	WE	D.O	--	Not	Active
100	PCTRL	D.O	High Power	--	Low Power

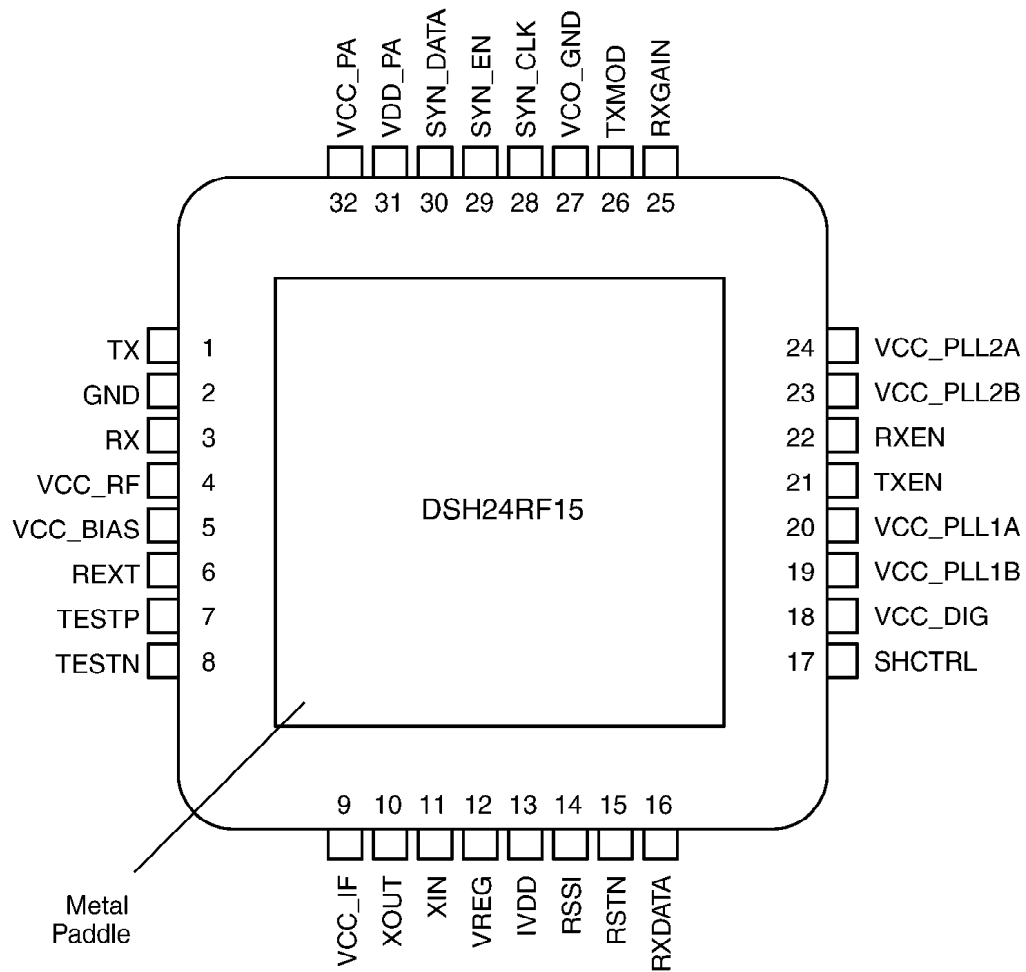
20. CPU DATA (Handset)

20.1. IC201

Pin	Description	I/O	High	High_Z	Low	Pin	Description	I/O	High	High_Z	Low
1	NC	D.O	--	--	Normal	51	XOUT	A.O	--	--	--
2	NC	D.O	--	--	Normal	52	XIN	A.I	--	--	--
3	UART_RX	D.I	High	--	Low	53	GND	GND	--	--	GND
4	UART_TX	D.O	High	--	Low	54	RSTN	D.I	Normal	--	Reset
5	LCD POWER_SW	D.O	Off	--	On	55	PDN	D.I	Power On	--	Power Down
6	KEY STROBE_F	D.O	--	Not	Active	56	MIC_POWSW	D.O	Bias Off	--	Bias On
7	KEY STROBE_E	D.O	--	Not	Active	57	TX0	D.O	High	--	Low
8	KEY STROBE_D	D.O	--	Not	Active	58	RXGAIN	D.I	HIGH_GAIN	--	LOW_GAIN
9	KEY STROBE_C	D.O	--	Not	Active	59	EEPROM_DO	D.I	High	--	Low
10	KEY STROBE_B	D.O	--	Not	Active	60	EEPROM_DI	D.O	High	--	Low
11	KEY STROBE_A	D.O	--	Not	Active	61	NC	D.O	--	--	Normal
12	NC	D.O	--	--	Normal	62	RSTH	D.O	Normal	--	Wakeup
13	HEADSET_DET	D.I	Headset In	--	Non	63	RXEN	D.O	High	--	Low
14	VCC	VCC	Vcc	--	--	64	TXEN	D.O	High	--	Low
15	GND	GND	--	--	GND	65	SHCTRL	D.O	High	--	Low
16	DOT_DB4	D.O	High	--	Low	66	RXI	D.I	High	--	Low
17	DOT_DB5	D.O	High	--	Low	67	EEPROM_CS	D.O	Active	--	Not
18	DOT_DB6	D.O	High	--	Low	68	NC	D.O	--	--	Normal
19	DOT_DB7	D.O	High	--	Low	69	LITED_LED	D.O	On	--	Off
20	DOT_E/RD	D.O	Active	--	Not	70	TALK_LED	D.O	Off	--	On
21	DOT_RW/WR	D.O	Read	--	Write	71	RADIOEN	D.O	On	--	Off
22	DOT_RS	D.O	Data	--	Instruction	72	GND	GND	--	--	GND
23	SIO DO_RF	D.O	High	--	Low	73	VCC	VCC	VCC	--	--
24	SIO LE_RF	D.O	Latch	--	Latch	74	CHAGE DET	D.I	Off Charge	--	On Charge
25	SIO CLK_RF	D.O	High	--	Low	75	TCK	D.O			
26	NC	D.O	--	--	Normal	76	TMS	D.O			
27	DOT_RESET	D.O	Not	--	Reset	77	TDI	D.I			
28	GND	GND	--	--	GND	78	TDO	D.O			
29	SPOUTP	A.O	--	--	--	79	RECHAGE LED	D.O	Off	--	On
30	GNDPA	GND	--	--	GND	80	INTLED	D.O	Off	--	On
31	SPOUTN	A.O	--	--	--	81	NC	D.O	Normal	--	--
32	VCCPA	VCC	VCC	--	--	82	KEYIN_5	D.I	Non	--	Key In
33	HSSPOUT	A.O	--	--	--	83	KEYIN_4	D.I	Non	--	Key In
34	LOUT0	A.O	--	--	--	84	KEYIN_3	D.I	Non	--	Key In
35	DCIN0	A.I	--	--	--	85	KEYIN_2	D.I	Non	--	Key In
36	LIN0	A.I	--	--	--	86	KEYIN_1	D.I	Non	--	Key In
37	LGS0	A.I	--	--	--	87	NC	D.O	Normal	--	--
38	CIDO0	A.I	--	--	--	88	LCD_BL	D.O	On	--	Off
39	CIDIN0	A.I	--	--	--	89	NC	D.O	--	--	Normal
40	CIDIPO	A.I	--	--	--	90	NC	D.O	--	--	Normal
41	VCCA	VCC	VCC	--	--	91	NC	D.O	--	--	Normal
42	DCIN1	A.I	--	--	--	92	NC	D.O	--	--	Normal
43	GND A	GND	--	--	GND	93	NC	D.O	--	--	Normal
44	HSMIP	A.I	--	--	--	94	NC	D.O	--	--	Normal
45	VRFF	A.O	--	--	--	95	NC	D.O	--	--	Normal
46	MIN	A.I	--	--	--	96	GND	GND	--	--	GND
47	MIP	A.I	--	--	--	97	VCC	VCC	VCC	--	--
48	RSSI	A.I	--	--	--	98	NC	D.O	Normal	--	--
49	GNDPLL	GND	--	--	GND	99	EPP_CLK	D.O	High	--	Low
50	VCCPLL	VCC	VCC	--	--	100	POWCTRL	D.O	--	--	Normal

21. EXPLANATION OF RF UNIT TERMINALS

21.1. IC101



Pin	Description	I/O
1	TX	O&VCC
2	GND_RF	GND
3	RX	I
4	VCC_RF	VCC
5	VCC_BIAS	VCC
6	REXT	I
7	TESTP	O
8	TESTN	O
9	VCC_IF	VCC
10	XOUT	XI/XO
11	XIN	XI/XO
12	VREG	O
13	VDD	I
14	RSSI	O
15	RSTN	I
16	RXDATA	O

Pin	Description	I/O
17	SHCTRL	I
18	VCC_DIG	VCC
19	VCC_PLL1B	VCC
20	VCC_PLL1A	VCC
21	TXEN	I
22	RXEN	I
23	VCC_PLL2B	VCC
24	VCC_PLL2A	VCC
25	RXGAIN	O
26	BCLK	O
27	TXMOD	I
28	SYN_CLK	I
29	SYN_EN	I
30	SYN_DATA	I
31	VDD_PA	I
32	VCC_PA	VCC
PKG	PADDLE_GND	GND

22. HOW TO REPLACE A FLAT PACKAGE IC

22.1. Preparation

- PbF (: Pb free) Solder

- Soldering Iron

Tip Temperature of $662^{\circ}\text{F} \pm 50^{\circ}\text{F}$ ($350^{\circ}\text{C} \pm 10^{\circ}\text{C}$)

Note: We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.

- Flux

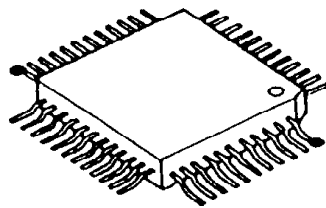
Recommended Flux: Specific Gravity $\rightarrow 0.82$.

Type $\rightarrow$ RMA (lower residue, non-cleaning type)

Note: See [ABOUT LEAD FREE SOLDER \(PbF: Pb free\)](#) ().

22.2. Procedure

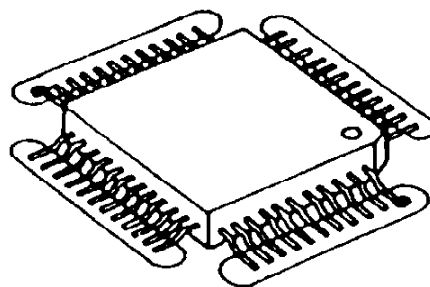
1. Tack the flat pack IC to the PCB by temporarily soldering two diagonally opposite pins in the correct positions on the PCB.



● - - - - - Temporary soldering point.

Be certain each pin is located over the correct pad on the PCB.

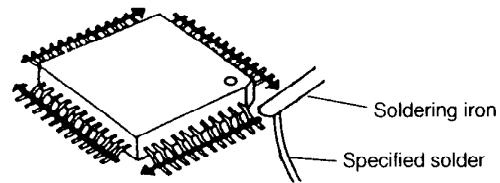
2. Apply flux to all of the pins on the IC.



○ - - - - - Flux

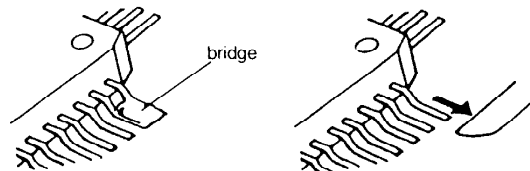
3. Being careful to not unsolder the tack points, slide the soldering

iron along the tips of the pins while feeding enough solder to the tip so that it flows under the pins as they are heated.

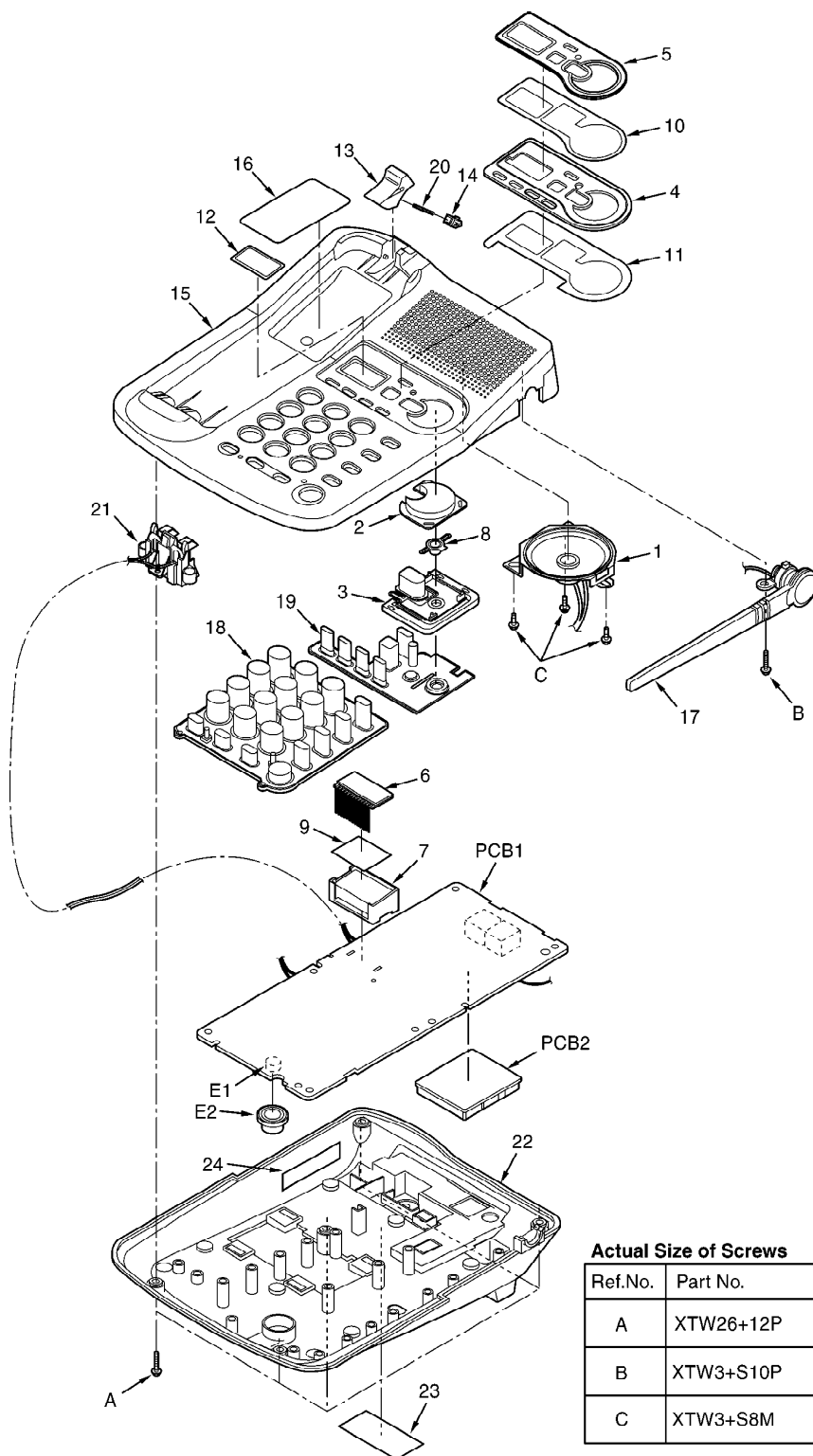


22.3. Removing Solder from Between Pins

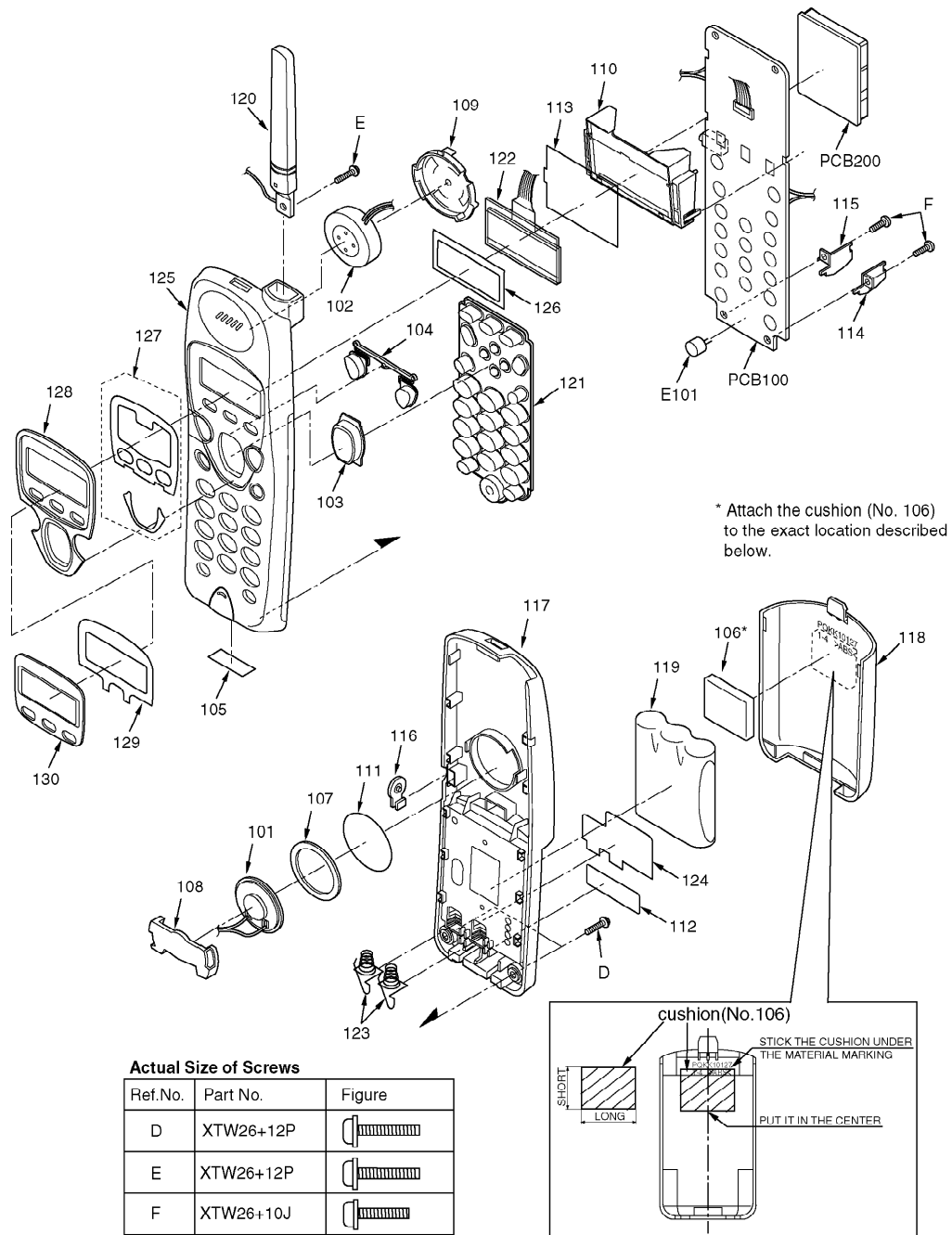
1. Add a small amount of solder to the bridged pins.
2. With a hot iron, use a sweeping motion along the flat part of the pin to draw the solder from between the adjacent pads.



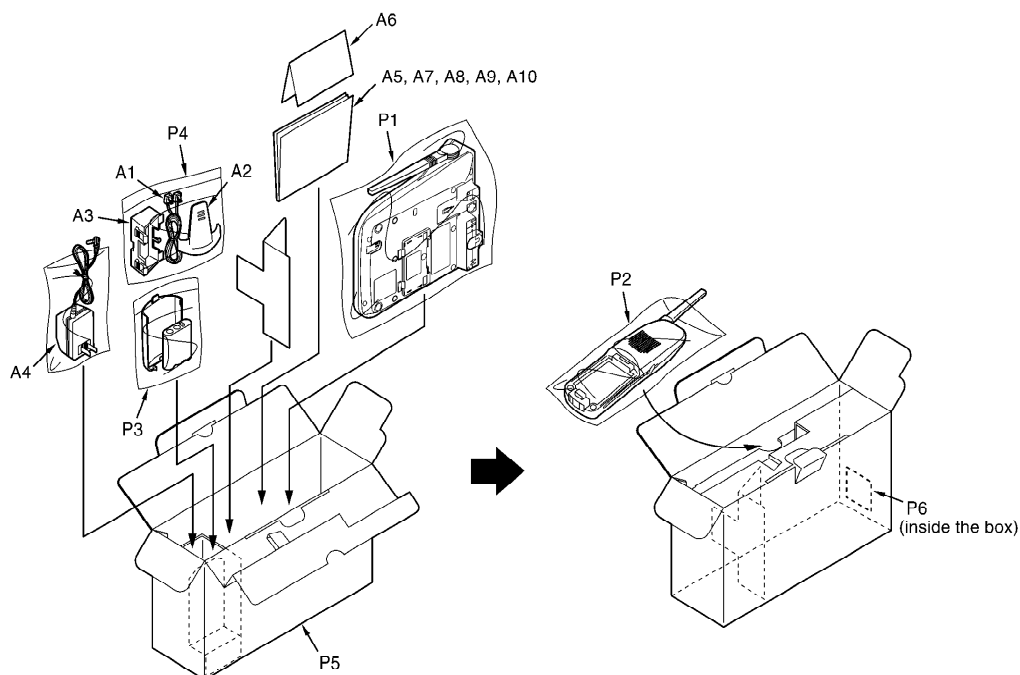
23. CABINET AND ELECTRICAL PARTS (Base Unit)



24. CABINET AND ELECTRICAL PARTS (Handset)



25. ACCESSORIES AND PACKING MATERIALS

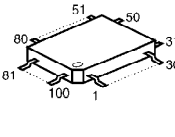
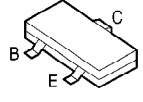
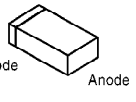
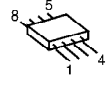
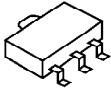
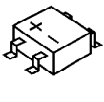


26. TERMINAL GUIDE OF THE ICs, TRANSISTORS AND DIODES

26.1. Base Unit

 PQVDRLZ2R0	 C2HBBG000035	 2SD1994A	 2SD1758Q	 UN5213 2SD1819A, 2SC3930C
 2SC2120 2SA1625 PQVT2N6517CA	 2SD2136	 PQVDM5S	 MA111, MA8220 MA8082, MA8039 PQVDHRU0302A	 C0EBE0000142
 PQWITG2257SH	 C0CBABD00013 C0CBABD00017	 PQVIPS3432UT	 PQVDBZ284C20, PQVDSS24 PQVDSML210MT, PQVDSML210L, PQVDEL1921SR	

26.2. Handset

 C2HBBG000036	 C0EBF0000157, 2SD1819A, 2SC3930C, UN5117, PQVTDTC143E, PQVTDTA143TU	 MA111 MA8100M MA2ZD1400	 PQVDSML310MT
 PQWITG2257SR	 PQVIMM1385EN	 C0CBABD00011	 PQVDM5S

27. REPLACEMENT PARTS LIST

Note:

1. RTL (Retention Time Limited)

The marking (RTL) indicates that the Retention Time is limited for this item.

After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability depends on the type of assembly and the laws governing parts and product retention.

At the end of this period, the assembly will no longer be available.

2. Important safety notice

Components identified by the  mark indicates special characteristics important for safety. When replacing any of these components, only use specified manufacture's parts.

3. The S mark means the part is one of some identical parts. For that reason, it may be different from the installed part.

4. RESISTORS & CAPACITORS

Unless otherwise specified;

All resistors are in ohms (Ω) K=1000 Ω , M=1000k Ω

All capacitors are in MICRO FARADS (μ F) P= μ μ F

*Type & Wattage of Resistor

Type					
ERC:Solid		ERX:Metal Film		PQ4R:Carbon	
ERD:Carbon		ERG:Metal Oxide		ERS:Fusible Resistor	
PQRD:Carbon		ER0:Metal Film		ERF:Cement Resistor	
Wattege					
10,16:1/8W		14,25:1/4W		12:1/2W	
		1:1W		2:2W	
				3:3W	
*Type & Voltage of Capacitor					
Type					
ECFD:Semi-Conductor		ECCD,ECKD,ECBT,PQCBC: Ceramic			
ECQS:Styrol		ECQE,ECQV,ECQG: Polyester			
PQCUV:Chip		ECEA,ECSZ:Electlytic			
ECQMS:Mica		ECQP:Polypropylene			
Voltage					
ECQ Type		ECQG ECQV Type		ECSZ Type	
				Others	
1H:50V		05:50V		0J :6.3V	
2A:100V		1:100V		1A :10V	
2E:250V		2:200V		50,1H:50V	
2H:500V				1C :16V	
				1J :63V	
				1E,25:25V	
				2A :100V	

27.1. Base Unit

27.1.1. CABINET AND ELECTRICAL PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
<u>1</u>	PQAS57P03Y	SPEAKER	
<u>2</u>	PQBC10355Z1	MESSAGE PLAYBACK / SLOWTALK BUTTON	S
<u>3</u>	PQBC10357Z1	STOP BUTTON	S
<u>4</u>	PQGG10138Z1	GRILLE	S
<u>5</u>	PQGP10206Z1	LCD PANEL	S
<u>6</u>	L5DCBCB00009	LIQUID CRYSTAL DISPLAY	
<u>7</u>	PQHR10911Z	LCD HOLDER	
<u>8</u>	PQHR10914Z	LED GUIDE	
<u>9</u>	PQHS10327Z	LCD TAPE	
<u>10</u>	PQHS10526Z	DOUBLE SIDE TAPE, PANEL	
<u>11</u>	PQHS10527Z	DOUBLE SIDE TAPE, GRILL	
<u>12</u>	PQHX11129Z	PANEL SHEET	
<u>13</u>	PQKE10131Z7	HOOK LEVER	S
<u>14</u>	PQKE10134Z1	HOOK KNOB	S
<u>15</u>	PQKM10547Z1	UPPER CABINET	S
<u>16</u>	PQQT22298Y	TAM LABEL	
<u>17</u>	PQSA10098X	ANTENNA	
<u>18</u>	PQSX10204Z	RUBBER SWITCH, DIAL	
<u>19</u>	PQSX10205Z	RUBBER SWITCH, TAM	
<u>20</u>	PQUS10285Z	HOOK SPRING	
<u>21</u>	PQWE10022Z	CHARGE TERMINAL	
<u>22</u>	PQYF10539Z1	LOWER CABINET	S
<u>23</u>	PQGT15219Z	NAME LABEL	
<u>24</u>	PQXDZLDRS1	SECURITY TAG	

27.1.2. MAIN P.C. BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	PQWPTG2257SH	MAIN P.C.BOARD ASS'Y (RTL)	
		(ICs)	
IC100	C0CBABD00013	IC	
IC101	C0CBABD00017	IC	
IC201	C2HBBG000035	IC	
IC300	PQWITG2257SH	IC	
IC331	PQVIPS3432UT	IC	S
IC332	C0EBE0000142	IC	
		(TRANSISTORS)	
Q1	2SC2120	TRANSISTOR(SI)	S
Q3	PQVT2N6517CA	TRANSISTOR(SI)	S
Q4	2SA1625	TRANSISTOR(SI)	S
Q5	UN5213	TRANSISTOR(SI)	S
Q6	2SD1819A	TRANSISTOR(SI)	
Q7	2SD1819A	TRANSISTOR(SI)	
Q50	2SD1819A	TRANSISTOR(SI)	
Q102	2SD1819A	TRANSISTOR(SI)	
Q104	2SD1758Q	TRANSISTOR(SI)	S
Q105	2SD2136	TRANSISTOR(SI)	
Q108	2SD2136	TRANSISTOR(SI)	
Q150	2SD1994A	TRANSISTOR(SI)	
Q151	2SD1819A	TRANSISTOR(SI)	
Q260	2SC3930C	TRANSISTOR(SI)	
		(DIODES)	
D1	PQVDRLZ2R0	DIODE(SI)	S
D2	PQVDBZ284C20	DIODE(SI)	S
D3	MA111	DIODE(SI)	
D4	PQVDM5S	DIODE(SI)	
D5	PQVDSS24	DIODE(SI)	
D101	PQVDHRU0302A	DIODE(SI)	S
D102	PQVDHRU0302A	DIODE(SI)	S
D103	MA8039	DIODE(SI)	
D105	PQVDHRU0302A	DIODE(SI)	S
D106	PQVDHRU0302A	DIODE(SI)	S
D107	MA8082	DIODE(SI)	
D110	MA8082	DIODE(SI)	
D152	MA8220	DIODE(SI)	
D153	MA8220	DIODE(SI)	
D202	MA111	DIODE(SI)	
D203	MA111	DIODE(SI)	
		(LEDs)	
LED201	PQVDSML210MT	LED	
LED202	PQVDSML210L	LED	S
LED203	PQVDSML210L	LED	S
LED204	PQVDEL1921SR	LED	
		(COILS)	
L1	PQLQXF330K	COIL	S
L2	PQLQXF330K	COIL	S
L3	PQLQXF3R3K	COIL	S
L150	PQLQZK3R3K	COIL	S
L151	PQLQZM100K	COIL	S
L200	PQLQR2KA213	COIL	S
		(CONNECTOR)	
CN1	PQJJ2H003Z	JACK/SOCKET	S

Ref. No.	Part No.	Part Name & Description	Remarks
		(CHARGE TERMINALS)	
G401	PQJT10152Z	CHARGE TERMINAL	
G402	PQJT10152Z	CHARGE TERMINAL	
G405	PQJT10152Z	CHARGE TERMINAL	
G406	PQJT10152Z	CHARGE TERMINAL	
		(COMPONENTS PARTS)	
RA200	EXRV8V104JV	COMPONENTS PARTS	S
RA201	EXRV8V472JV	COMPONENTS PARTS	S
		(VARISTORS)	
SA1	PQVDDSS301L	VARISTOR	S
SA2	PQVDDSS301L	VARISTOR	S
		(OTHERS)	
<u>E1</u>	L0CBAB000044	MICROPHONE	
<u>E2</u>	PQMG10023Z	CUSHION RUBBER, MIC	
POS1	PQRPAR390N	THERMISTOR	S
X200	H0J819400004	CRYSTAL OSCILLATOR	
		(RESISTORS)	
R1	ERJ3GEYJ122	1.2k	
R2	ERJ3GEYJ681	680	
R3	ERJ3GEYJ470	47	
R5	ERDS1TJ330	33	S
R7	ERJ3GEYJ393	39k	
R8	ERJ3GEY0R00	0	
R10	ERJ3GEYJ102	1k	
R13	ERJ3GEYJ473	47k	
R14	ERJ3GEYJ394	390k	
R15	ERJ3GEYJ394	390k	
R17	ERJ3GEYJ473	47k	
R18	ERJ3GEYJ103	10k	
R19	ERJ3GEYJ563	56k	
R20	ERD25TJ104	100k	S
R21	ERJ3GEYJ103	10k	
R23	ERDS1VJ106	10M	
R24	ERJ3GEYJ275	2.7M	
R25	ERJ3GEYJ155	1.5M	
R26	ERJ3GEYJ472	4.7k	
R29	ERJ3GEYJ472	4.7k	
R30	ERJ3GEYJ104	100k	
R31	ERJ3GEYJ104	100k	
R50	ERJ3GEYJ102	1k	
R51	ERJ3GEYJ470	47	
R52	ERJ3GEYJ394	390k	
R55	ERJ3GEYJ102	1k	
R57	ERJ3GEY0R00	0	
R70	ERJ3GEYJ392	3.9k	
R91	PQ4R10XJ102	1k	S
R100	PQ4R10XJ102	1k	S
R102	ERJ3GEYJ224	220k	
R104	ERJ3GEYJ473	47k	
R105	ERJ3GEYJ103	10k	
R107	PQ4R10XJ471	470	S
R108	PQ4R10XJ102	1k	S
R109	ERJ3GEYJ683	68k	
R112	ERJ3GEYJ273	27k	

Ref. No.	Part No.	Part Name & Description	Remarks
R114	PQ4R10XJ102	1k	S
R116	ERJ3GEY0R00	0	
R117	ERJ3GEY0R00	0	
R118	ERJ3GEYJ102	1k	
R150	ERJ3GEYJ104	100k	
R151	ERJ3GEYJ561	560	
R152	ERJ3GEYJ331	330	
R153	ERJ3GEYJ270	27	
R154	ERJ3GEYJ270	27	
R155	ERJ3GEYJ270	27	
R156	ERJ3GEYJ330	33	
R157	ERDS1TJ221	220	S
R159	ERJ3GEYJ103	10k	
R160	ERJ3GEYJ563	56k	
R161	ERJ3GEYJ563	56k	
R200	ERJ3GEYJ101	100	
R201	ERJ3GEYJ101	100	
R203	ERJ3GEYJ473	47k	
R204	ERJ3GEYJ271	270	
R205	ERJ3GEYJ391	390	
R206	ERJ3GEYJ821	820	
R207	ERJ3GEYJ181	180	
R212	ERJ3GEYJ102	1k	
R213	ERJ3GEYJ102	1k	
R214	ERJ3GEYJ102	1k	
R215	ERJ3GEYJ122	1.2k	
R216	ERJ3GEYJ122	1.2k	
R217	ERJ3GEYJ394	390k	
R218	ERJ3GEYJ123	12k	
R219	ERJ3GEYJ103	10k	
R222	ERJ3GEYJ333	33k	
R223	ERJ3GEYJ222	2.2k	
R224	ERJ3GEYJ394	390k	
R227	ERJ3GEYJ222	2.2k	
R230	ERJ3GEY0R00	0	
R231	ERJ3GEY0R00	0	
R232	ERJ3GEY0R00	0	
R233	ERJ3GEY0R00	0	
R234	ERJ3GEY0R00	0	
R251	ERJ3GEYJ102	1k	
R252	ERJ3GEYJ102	1k	
R260	ERJ3GEYJ471	470	
R261	ERJ3GEYJ471	470	
R262	ERJ3GEYJ104	100k	
R263	ERJ3GEYJ101	100	
R264	ERJ3GEYJ182	1.8k	
R300	ERJ3GEYJ104	100k	
R301	ERJ3GEYJ103	10k	
R400	ERJ3GEYJ332	3.3k	
R430	ERJ3GEYJ121	120	
R431	ERJ3GEYJ121	120	
R432	ERJ3GEYJ121	120	
R433	ERJ3GEYJ102	1k	
R434	ERJ3GEYJ121	120	

Ref. No.	Part No.	Part Name & Description	Remarks
R435	ERJ3GEYJ121	120	
R436	ERJ3GEYJ121	120	
R437	ERJ3GEYJ121	120	
R438	ERJ3GEYJ121	120	
R439	ERJ3GEYJ121	120	
R440	ERJ3GEYJ121	120	
R909	ERJ3GEYJ101	100	
C61	ERJ3GEY0R00	0	
J201	ERJ3GEYJ472	4.7k	
J202	ERJ3GEY0R00	0	
L203	PQ4R10XJ000	0	S
L204	PQ4R10XJ000	0	S
		(CAPACITORS)	
C1	ECEA1CKA100	10	
C3	ECUV1C473KBV	0.047	
C4	ECUV1H101JCV	100p	
C6	ECUV1H103KBV	0.01	
C8	ECEA1HKA010	1	
C9	ECUV1H103KBV	0.01	S
C11	ECUV1H681JCV	680p	S
C12	ECUV1H681JCV	680p	S
C13	ECUV1H102KBV	0.001	S
C14	ECUV1H103KBV	0.01	
C15	PQCUV1A684KB	0.68	
C16	PQCUV1H154KR	0.15	
C17	PQCUV1H154KR	0.15	
C18	ECKD2H681KB	680p	S
C19	ECKD2H681KB	680p	S
C55	ECUV1H102KBV	0.001	S
C58	ECUV1C104KBV	0.1	
C70	EEE0JA220SR	22	
C100	ECUV1C104ZFV	0.1	
C101	EEE0JA101SP	100	
C103	ECEA0JU102	1000	
C105	PQCUV1C334KB	0.33	
C106	ECUV1C104ZFV	0.1	
C107	EEE0JA220SR	22	
C108	EEE0JA101SP	100	
C109	ECUV1H103KBV	0.01	S
C110	ECUV1C104ZFV	0.1	
C112	EEE1AA101SP	100	
C114	ECEA1CK101	100	S
C120	ECEA1EU101	100	S
C150	ECUV1C104ZFV	0.1	
C200	ECUV1C104ZFV	0.1	
C201	ECUV1H681JCV	680p	S
C207	ECUV1C104ZFV	0.1	
C213	ECUV1C104ZFV	0.1	
C214	ECUV1H101JCV	100p	
C215	ECUV1H101JCV	100p	
C216	ECUV1H101JCV	100p	
C217	ECUV1H101JCV	100p	
C218	ECUV1H101JCV	100p	
C219	ECUV1H101JCV	100p	

Ref. No.	Part No.	Part Name & Description	Remarks
C220	ECUV1H101JCV	100p	
C222	ECUV1H101JCV	100p	
C223	ECUV1H101JCV	100p	
C227	ECUV1H050CCV	5p	
C228	ECUV1H050CCV	5p	
C230	EEE1CA100SR	10	
C231	ECUV1C104ZFV	0.1	
C232	ECUV1H101JCV	100p	
C233	ECUV1H101JCV	100p	
C234	ECUV1H103KBV	0.01	S
C235	ECUV1H103KBV	0.01	
C236	ECUV1H103KBV	0.01	
C237	EEE1CA100SR	10	
C238	ECUV1H103KBV	0.01	S
C239	ECEA0JU331	330	
C241	ECUV1C104ZFV	0.1	
C242	ECUV1H272KBV	0.0027	
C244	ECUV1C104KBV	0.1	
C245	ECUV1H121JCV	120p	
C250	ECUV1C473KBV	0.047	
C251	ECUV1C104ZFV	0.1	
C252	ECUV1C104ZFV	0.1	
C260	ECUV1C104ZFV	0.1	
C261	ECUV1H030CCV	3p	
C262	ECUV1C104KBV	0.1	
C263	ECUV1C104KBV	0.1	
C300	ECUV1H101JCV	100p	
C301	ECUV1H101JCV	100p	
C302	ECUV1H101JCV	100p	
C303	ECUV1H101JCV	100p	
C304	ECUV1H101JCV	100p	
C305	ECUV1H101JCV	100p	
C306	ECUV1H101JCV	100p	
C307	ECUV1H101JCV	100p	
C308	ECUV1C104ZFV	0.1	
C309	ECUV1C104ZFV	0.1	
C310	ECUV1H101JCV	100p	
C311	ECUV1H101JCV	100p	
C312	ECUV1H101JCV	100p	
C313	ECUV1H101JCV	100p	
C315	ECUV1H101JCV	100p	
C400	ECUV1H010CCV	1p	
C401	ECUV1H103KBV	0.01	S
C402	ECUV1C104ZFV	0.1	
C404	ECUV1H101JCV	100p	
C405	ECUV1H330JCV	33p	
C406	ECUV1H101JCV	100p	
C407	ECUV1H101JCV	100p	
C408	ECUV1H101JCV	100p	
C409	ECUV1H101JCV	100p	
C410	ECUV1H101JCV	100p	
C411	ECUV1H101JCV	100p	
C412	ECUV1H101JCV	100p	
C415	EEE0JA220SR	22	

Ref. No.	Part No.	Part Name & Description	Remarks
C416	ECUV1H070CCV	7p	
C420	ECUV1H101JCV	100p	
C421	ECUV1H101JCV	100p	
C422	ECUV1H101JCV	100p	
C430	ECUV1H471JCV	470p	
C450	ECEA0JKA101	100	
C453	ECUV1H030CCV	3p	
C723	ECUV1C823KBV	0.082	

27.1.3. RF P.C.BOARD PART

Ref. No.	Part No.	Part Name & Description	Remarks
PCB2	PQLP10254Z	RF BLOCK	

27.2. Handset

27.2.1. CABINET AND ELECTRICAL PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
101	PQAS3P07Y	SPEAKER	
102	PQAX3P27Z	RECEIVER	
103	PQBC10356Z1	NAVIGATION BUTTON	S
104	PQBX10356Z1	TALK, OFF BUTTON	S
105	PQGT15220Z	NAME LABEL	
106	PQHE10109Z	CUSHION, URETHANE FORM	
107	PQHG10589Y	SP RUBBER SHEET	
108	PQHR10778Z	SP HOLDER	
109	PQHR10855Z	SP HOLDER	
110	PQHR10912Z	LCD HOLDER	
111	PQHS10457Z	SPEAKER NET	
112	PQQT22419Z	PRODUCTION LABEL	
113	PQHX11005Z	LCD SHEET	
114	PQJT10176Z	CHARGE TERMINAL (L)	
115	PQJT10177Z	CHARGE TERMINAL (R)	
116	PQKE10342Z1	HEADSET JACK COVER	S
117	PQKF10558Z1	REAR CABINET	S
118	PQKK10127Z1	BATTERY COVER	S
119	PQPP511SVC	BATTERY	S
120	PQSA10125Z	ANTENNA	
121	PQSX10208Z	RUBBER SWITCH	
122	PQADGP332GN2	LIQUID CRYSTAL DISPLAY	
123	PQJC10050Z	BATTERY TERMINAL	
124	PQQT22418Z	BATTERY LABEL	
125	PQKM10551Z1	FRONT CABINET	
126	PQHS10470Z	CUSHION, LCD	
127	PQHS10535Z	DOUBLE SIDE TAPE, GRILL	
128	PQGG10139Z1	GRILL	
129	PQHS10528Z	DOUBLE SIDE TAPE, PANEL	
130	PQGP10207Z1	LCD PANEL	

27.2.2. MAIN P.C. BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB100	PQWPTG2257SR	MAIN P.C.BOARD ASS'Y (RTL)	
		(ICs)	
IC201	C2HBBG000036	IC	
IC202	PQWITG2257SR	IC	
IC203	C0CBABD00011	IC	
IC204	PQVIMM1385EN	IC	S
IC205	C0EBF0000157	IC	
		(TRANSISTORS)	
Q201	PQVTDTC143E	TRANSISTOR(SI)	S
Q202	PQVTDTC143E	TRANSISTOR(SI)	S
Q203	UN5117	TRANSISTOR(SI)	
Q204	2SC3930C	TRANSISTOR(SI)	
Q205	2SD1819A	TRANSISTOR(SI)	
Q206	PQVTDTC143E	TRANSISTOR(SI)	S
Q207	2SD1819A	TRANSISTOR(SI)	
Q211	PQVTDTA143TU	TRANSISTOR(SI)	
		(DIODES)	
D201	MA2ZD1400	DIODE(SI)	
D203	MA111	DIODE(SI)	
D206	PQVDM5S	DIODE(SI)	
D211	MA8100M	DIODE(SI)	
D214	MA111	DIODE(SI)	
D215	MA2ZD1400	DIODE(SI)	
D216	MA111	DIODE(SI)	
		(LEDs)	
LED201	PQVDSML310MT	LED	S
LED202	PQVDSML310MT	LED	S
LED203	PQVDSML310MT	LED	S
LED204	PQVDSML310MT	LED	S
LED205	PQVDSML310MT	LED	S
LED206	PQVDSML310MT	LED	S
LED207	PQVDSML310MT	LED	S
		(COILS)	
L203	J0JCC0000186	COIL	
R242	PQLQR4RB601D	COIL	
R243	PQLQR4RB601D	COIL	
		(CONNECTORS)	
CN201	PQJS22A12Z	CONNECTOR	S
CN203	PQJJ1J007Z	JACK/SOCKET	S
		(CHARGE TERMINALS)	
BATT1	PQJT10152Z	CHARGE TERMINAL	
BATT2	PQJT10152Z	CHARGE TERMINAL	
G1	PQJT10152Z	CHARGE TERMINAL	
G3	PQJT10152Z	CHARGE TERMINAL	
G4	PQJT10152Z	CHARGE TERMINAL	
G6	PQJT10152Z	CHARGE TERMINAL	
		(OTHERS)	
E101	L0CBAB000044	MICROPHONE	
RA201	EXRV8V104JV	COMPONENTS PARTS	S
X201	H0J819400004	CRYSTAL OSCILLATOR	
		(RESISTORS)	
R201	ERJ3GEYJ331	330	
R202	ERJ3GEYJ331	330	
R203	ERJ3GEYJ331	330	

Ref. No.	Part No.	Part Name & Description	Remarks
R204	ERJ3GEYJ331	330	
R205	ERJ3GEYJ271	270	
R206	ERJ3GEYJ271	270	
R207	ERJ3GEYJ271	270	
R209	ERJ3GEYJ102	1k	
R210	ERJ3GEYJ103	10k	
R211	ERJ3GEYJ103	10k	
R212	ERJ3GEYJ101	100	
R213	ERJ3GEYJ101	100	
R217	ERJ3GEYF434	430k	S
R218	ERJ3GEYF824	820k	S
R222	ERJ3GEYJ101	100	
R223	ERJ3GEYJ101	100	
R224	ERJ3GEYJ103	10k	
R225	ERJ3GEYJ472	4.7k	
R228	ERJ3GEYJ224	220k	
R229	ERJ3GEYJ102	1k	
R230	ERJ3GEYJ102	1k	
R231	ERJ3GEYJ102	1k	
R232	ERJ3GEYJ103	10k	
R233	ERJ3GEY0R00	0	
R234	ERJ3GEYJ225	2.2M	
R235	ERJ3GEYJ225	2.2M	
R236	ERJ3GEYJ473	47k	
R244	ERJ3GEYJ473	47k	
R245	ERJ3GEYJ103	10k	
R246	ERJ3GEYJ153	15k	
R247	ERJ3GEYJ391	390	
R248	ERJ3GEYJ393	39k	
R249	ERJ3GEYJ122	1.2k	
R250	ERJ3GEYJ122	1.2k	
R253	ERJ3GEYJ222	2.2k	
R260	ERJ3GEYJ103	10k	
R265	ERJ3GEYJ103	10k	
R270	ERJ3GEYJ104	100k	
R276	ERJ3GEYJ471	470	
R277	ERJ3GEYJ471	470	
R278	ERJ3GEYJ104	100k	
R279	ERJ3GEYJ101	100	
R280	ERJ3GEYJ182	1.8k	
R281	ERJ3GEYJ104	100k	
R302	ERJ3GEYJ180	18	
R303	ERJ3GEYJ180	18	
R306	ERJ3GEYJ104	100k	
R318	ERJ3GEYJ331	330	
R319	ERJ3GEYJ331	330	
R320	ERJ3GEYJ331	330	
R321	ERJ3GEYJ331	330	
R322	ERJ3GEYJ331	330	
R323	ERJ3GEYJ331	330	
R324	ERJ3GEYJ331	330	
C301	ERJ3GEY0R00	0	
L209	PQ4R10XJ000	0	S
		(CAPACITORS)	

Ref. No.	Part No.	Part Name & Description	Remarks
C203	ECUV1C104ZFV	0.1	
C205	ECUV1H101JCV	100p	
C206	ECUV1C104KBV	0.1	
C207	ECUV1C104KBV	0.1	
C208	ECUV1C104KBV	0.1	
C209	ECUV1C104KBV	0.1	
C210	ECUV1C104KBV	0.1	
C211	ECUV1A474KBV	0.47	
C212	ECUV1A474KBV	0.47	
C213	EEE0JA101SP	100	
C214	ECUV1C104ZFV	0.1	
C215	ECUV1A474KBV	0.47	
C217	ECUV1C104ZFV	0.1	
C218	ECUV1C104ZFV	0.1	
C220	EEE0JA101SP	100	
C221	ECUV1C104ZFV	0.1	
C222	ECUV1C104ZFV	0.1	
C223	ECST0JY106	10	
C224	ECUV1C104ZFV	0.1	
C225	ECUV1A105ZFV	1	
C226	ECUV1C104ZFV	0.1	
C227	ECUV1C104ZFV	0.1	
C228	ECUV1C104ZFV	0.1	
C229	ECUV1A105ZFV	1	
C230	ECUV1E333KBV	0.033	
C231	ECUV1A224KBV	0.22	
C232	ECUV1E333KBV	0.033	
C233	ECUV1A105ZFV	1	
C234	ECUV1A224KBV	0.22	
C236	ECUV1H050CCV	5p	
C237	ECUV1H050CCV	5p	
C239	ECUV1C104ZFV	0.1	
C242	ECUV1C104ZFV	0.1	
C243	ECUV1H103KBV	0.01	
C244	ECUV1C104ZFV	0.1	
C255	ECUV1A224KBV	0.22	
C257	ECST0JY226	22	
C262	ECUV1A105ZFV	1	
C267	ECST0JX226	22	
C270	ECST0JY475	4.7	
C274	ECUV1C104ZFV	0.1	
C277	ECUV1C823KBV	0.082	
C280	ECUV1C104ZFV	0.1	
C282	ECUV1C104ZFV	0.1	
C285	ECUV1C105ZF	1	
C291	ECUV1C104ZFV	0.1	
C294	ECUV1C104ZFV	0.1	
C296	ECUV1H102KBV	0.001	S
C297	ECUV1H471JCV	470p	
C298	ECUV1H101JCV	100p	
C299	ECUV1H101JCV	100p	
C303	ECST0JY106	10	
C304	ECUV1C104ZFV	0.1	
C305	ECUV1H030CCV	3p	

Ref. No.	Part No.	Part Name & Description	Remarks
C306	ECUV1C104ZFB	0.1	
C307	ECUV1C104KBV	0.1	
C308	ECUV1H030CCV	3p	
C309	ECUV1C104KBV	0.1	
C315	ECUV1H030CCV	3p	
C316	ECUV1H221JCV	220p	
C317	ECUV1H010CCV	1p	
L201	ECUV1H010CCV	1p	

27.2.3. RF P.C.BOARD PART

Ref. No.	Part No.	Part Name & Description	Remarks
PCB200	PQLP10254Z	RF BLOCK	

27.2.4. ACCESSORIES AND PACKING MATERIALS

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PQJA10075Z	TEL CORD	
A2	PQKE10341Z1	BELT CLIP	S
A3	PQKL10035Z3	WALL MOUNT ADAPTOR	S
A4	PQLV1Z	AC ADAPTOR	
A5	PQQV10308Z	CCP CARD	
A6	PQQW12560Z	LEAFLET	
A7	PQQW12601Y	QUICK GUIDE (for English)	
A8	PQQW12602Y	QUICK GUIDE (for Spanish)	
A9	PQQW12657Y	LEAFLET	
A10	PQQX13316Y	INSTRUCTION BOOK	
P1	PQPP170Y	POLY BAG (for Base Unit)	
P2	XZB10X35A02	POLY BAG (for Handset)	
P3	XZB10X15A04	POLY BAG	
P4	XZB15X25A01	POLY BAG (for Tel cord)	
P5	PQPK13664Y	GIFT BOX	
P6	PQXDDS400-8	SECURITY TAG	

28. FOR SCHEMATIC DIAGRAM

28.1. Base Unit (SCHEMATIC DIAGRAM (Base Unit))

Note:

1. DC voltage measurements are taken with voltmeter from the negative voltage line.
2. This schematic diagram may be modified at any time with the development of new technology.

Important Safety Notice:

Components identified by  mark have special characteristics important for safety. When replacing any of these components, use only the manufacturer's specified parts.

28.2. Handset (SCHEMATIC DIAGRAM (Handset))

Note:

1. DC voltage measurements are taken with an oscilloscope or a tester with a ground.
2. The schematic diagrams and circuit board may be modified at any time with the development of new technology.

29. SCHEMATIC DIAGRAM (Base Unit)

30. SCHEMATIC DIAGRAM (Handset)

31. SCHEMATIC DIAGRAM (RF Unit)

32. CIRCUIT BOARD (RF Unit)

33. CIRCUIT BOARD (Base Unit)

33.1. Component View

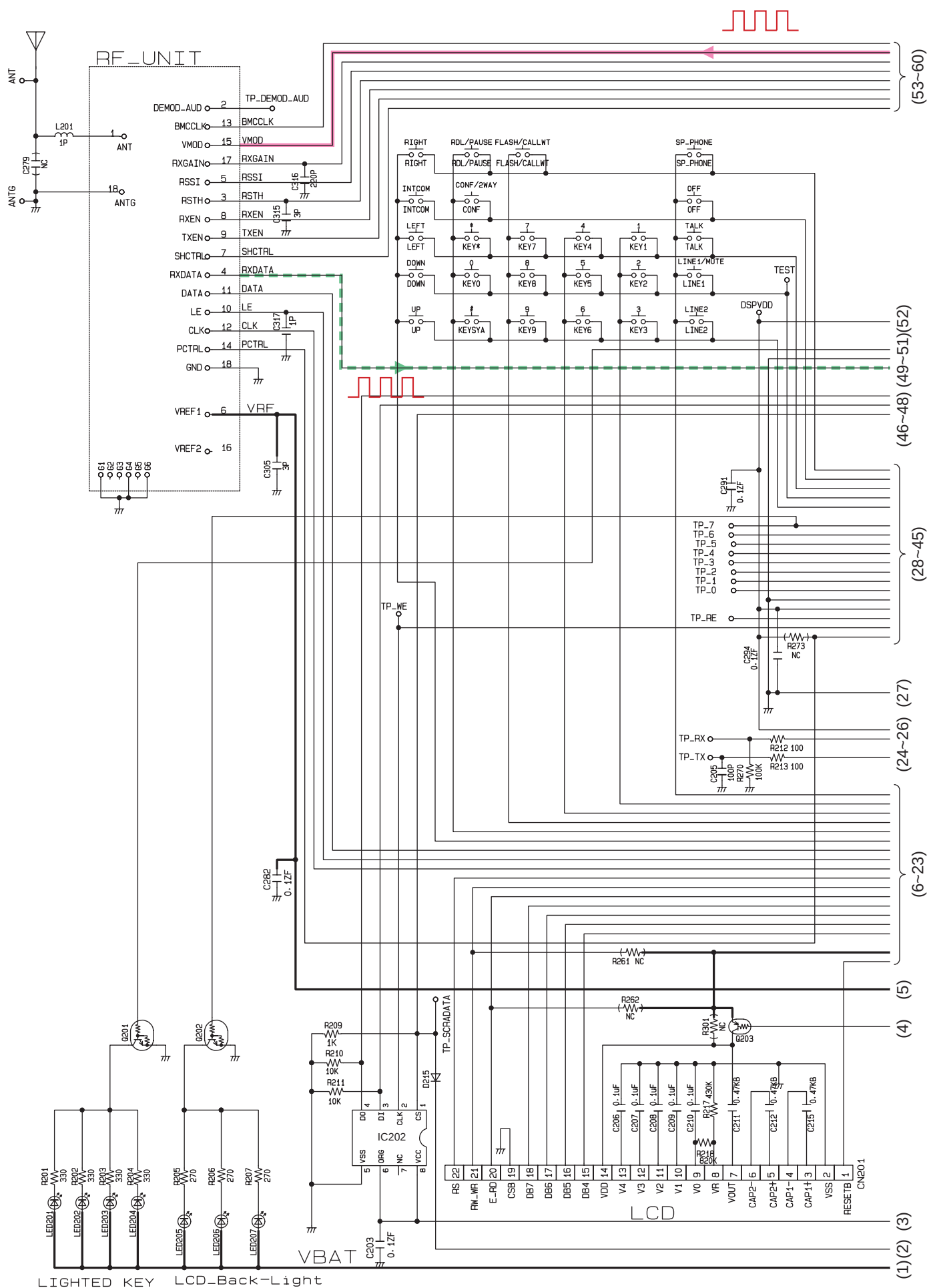
33.2. Flow Solder Side View

34. CIRCUIT BOARD (Handset)

34.1. Component View

34.2. Flow Solder Side View

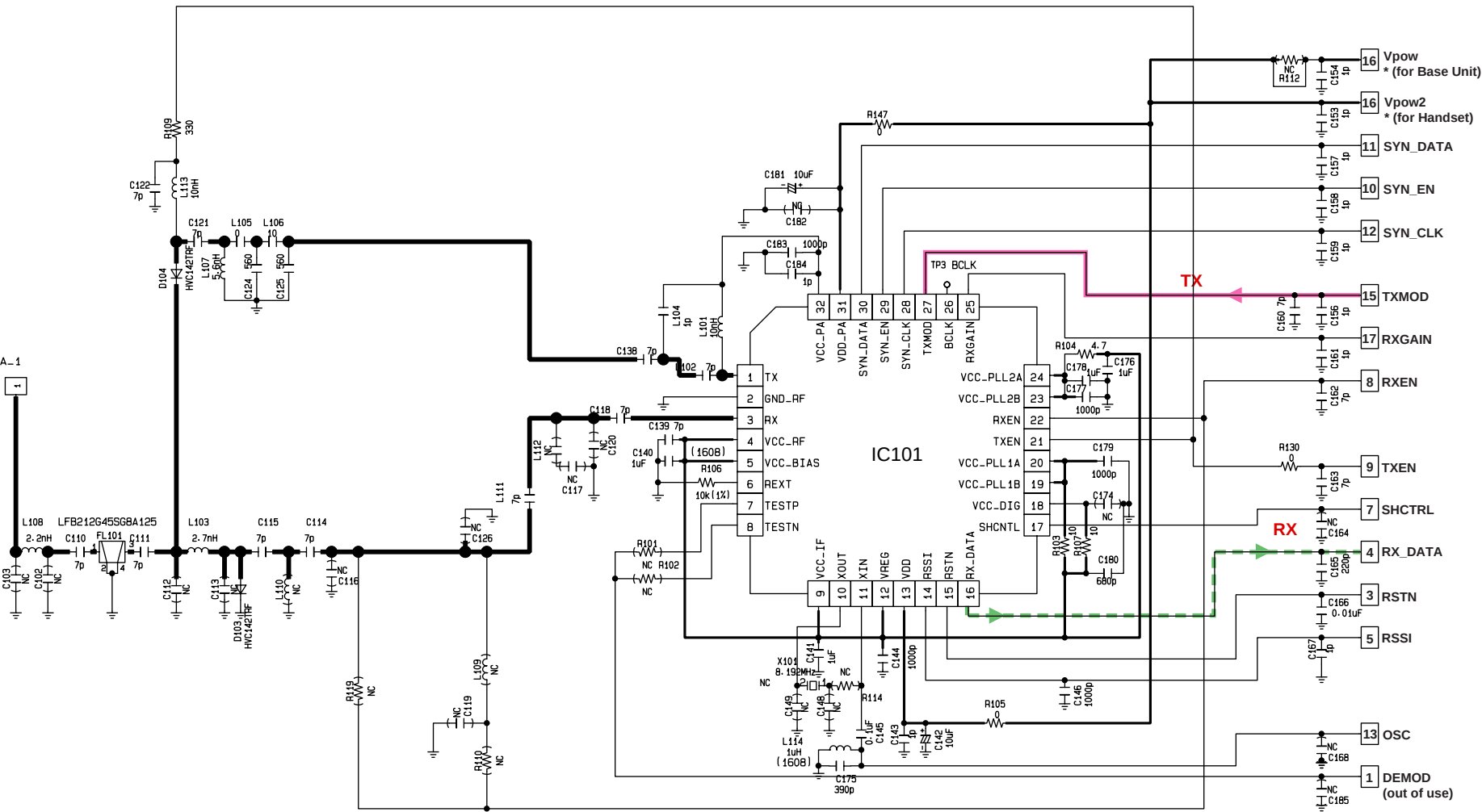
H.M / KXTG2257S



LIGHTED KEY LCD_Back-Light



* When either Vpow or Vpow2 is in use,
the other is out of use.



KX-TG2257S SCHEMATIC DIAGRAM (RF Unit)

ANT

RXGAIN

Vp_{ow}

TXMOD

N.C.

Vp_{ow}2

OSC

SYN_CLK

SYN_DATA

SYN_EN

TXEN

RXEN

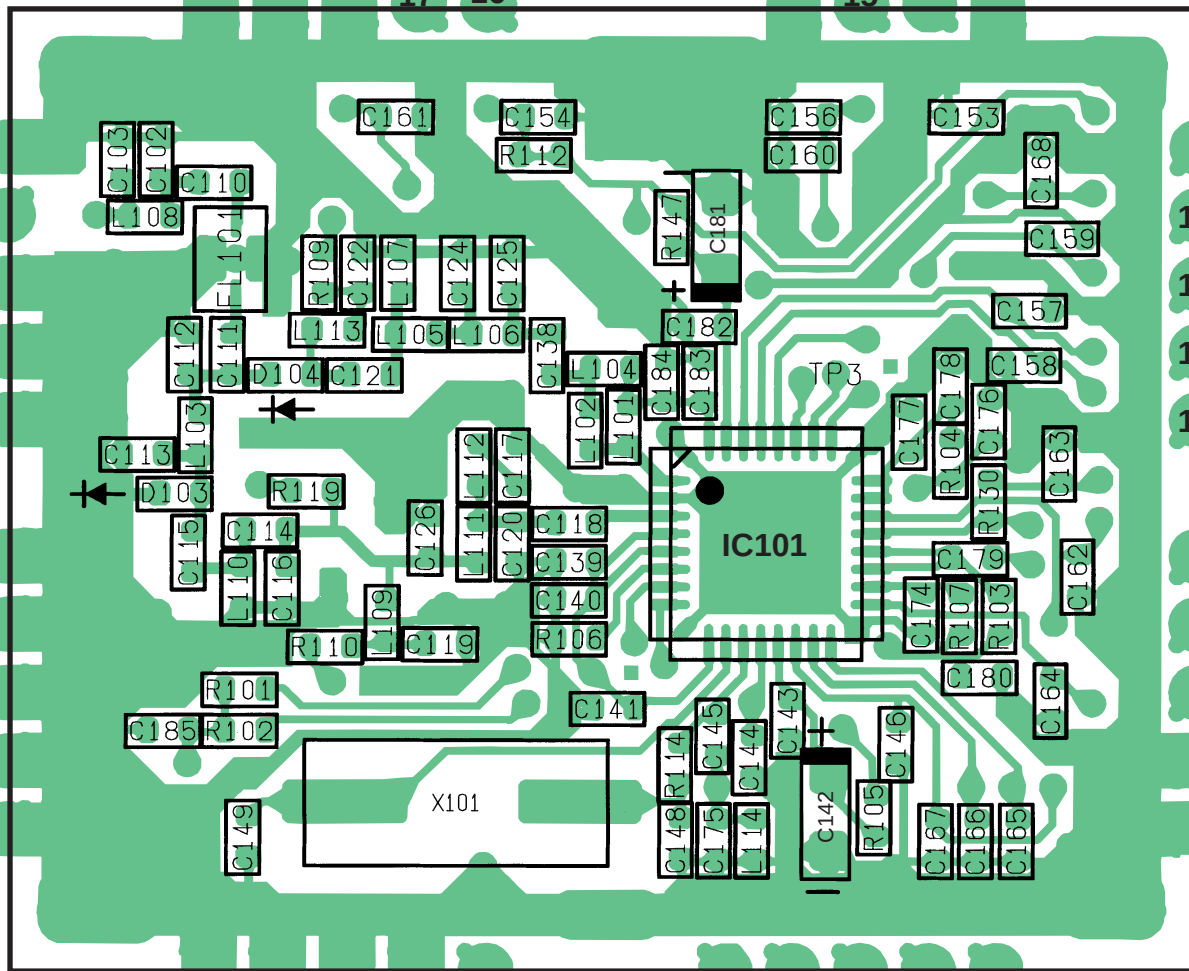
SHCTRL

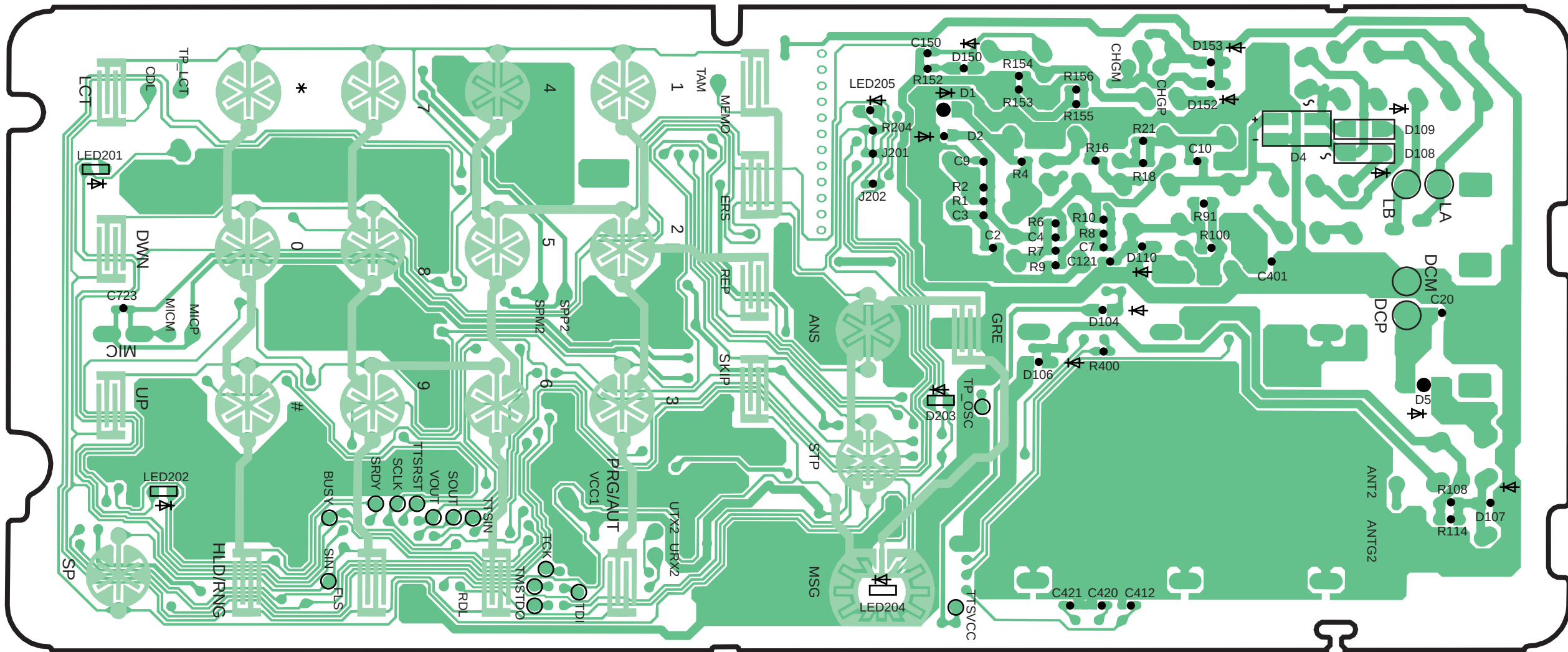
DEMOD

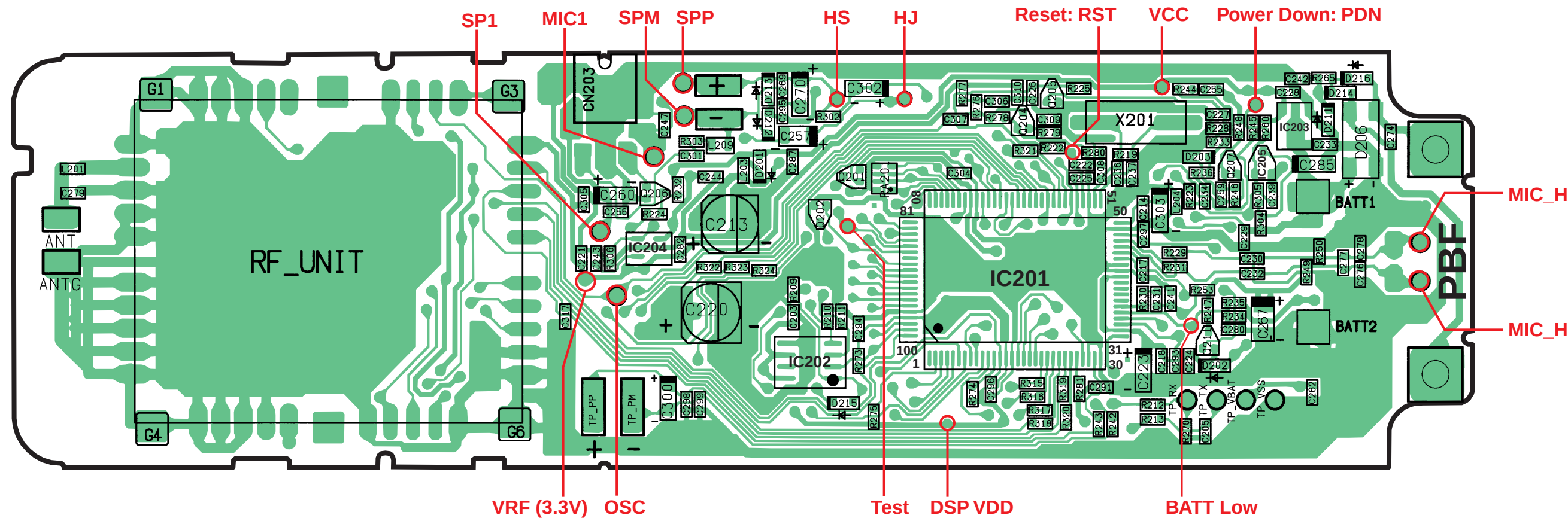
RSTN

RX_DATA

RSSI







KX-TG2257S CIRCUIT BOARD (Component View (Handset))

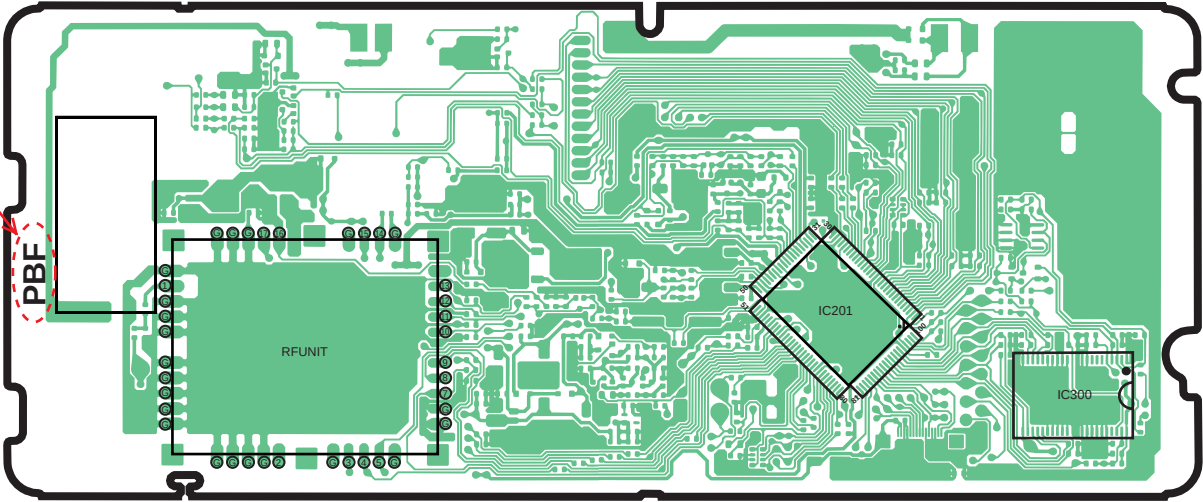
Stamped PBF

PBF

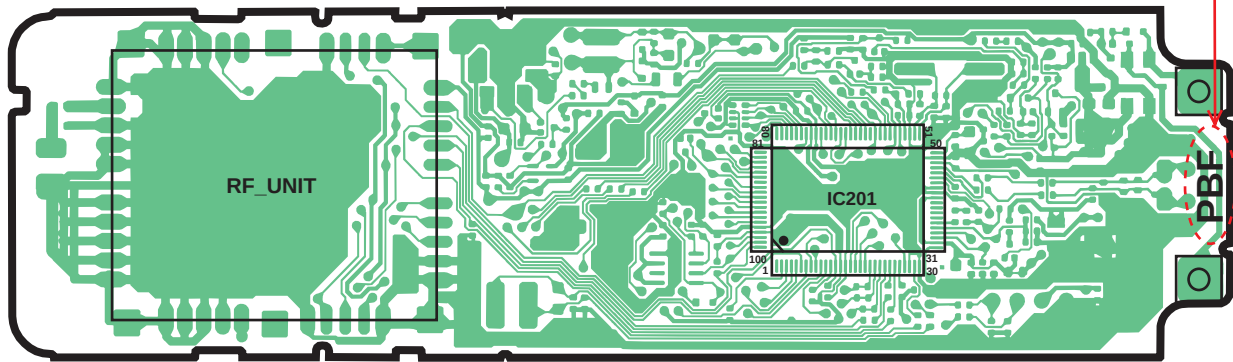
RFUNIT

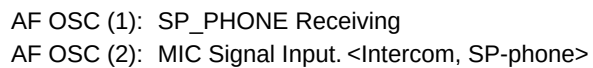
IC201

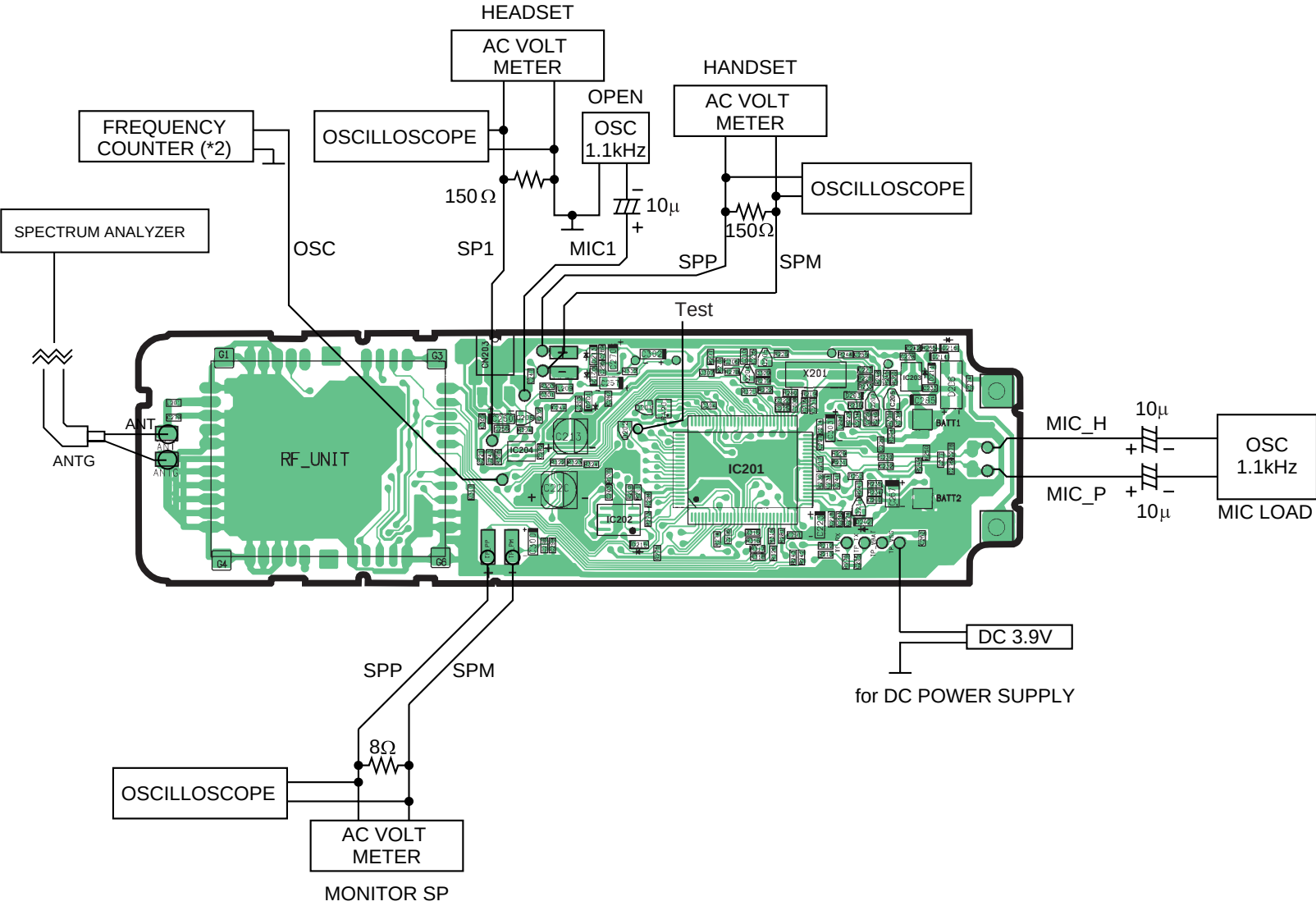
IC300

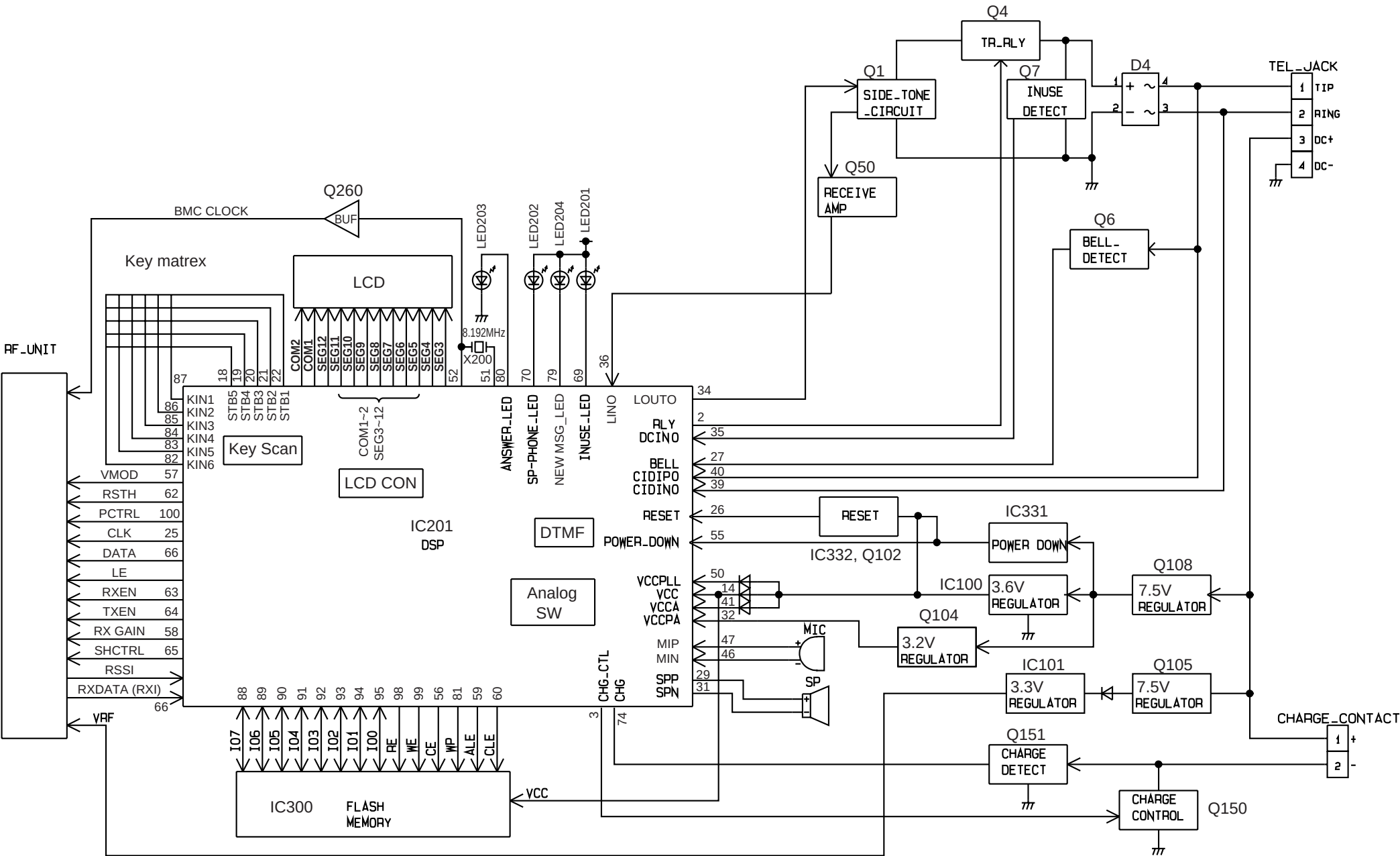


Stamped PBF

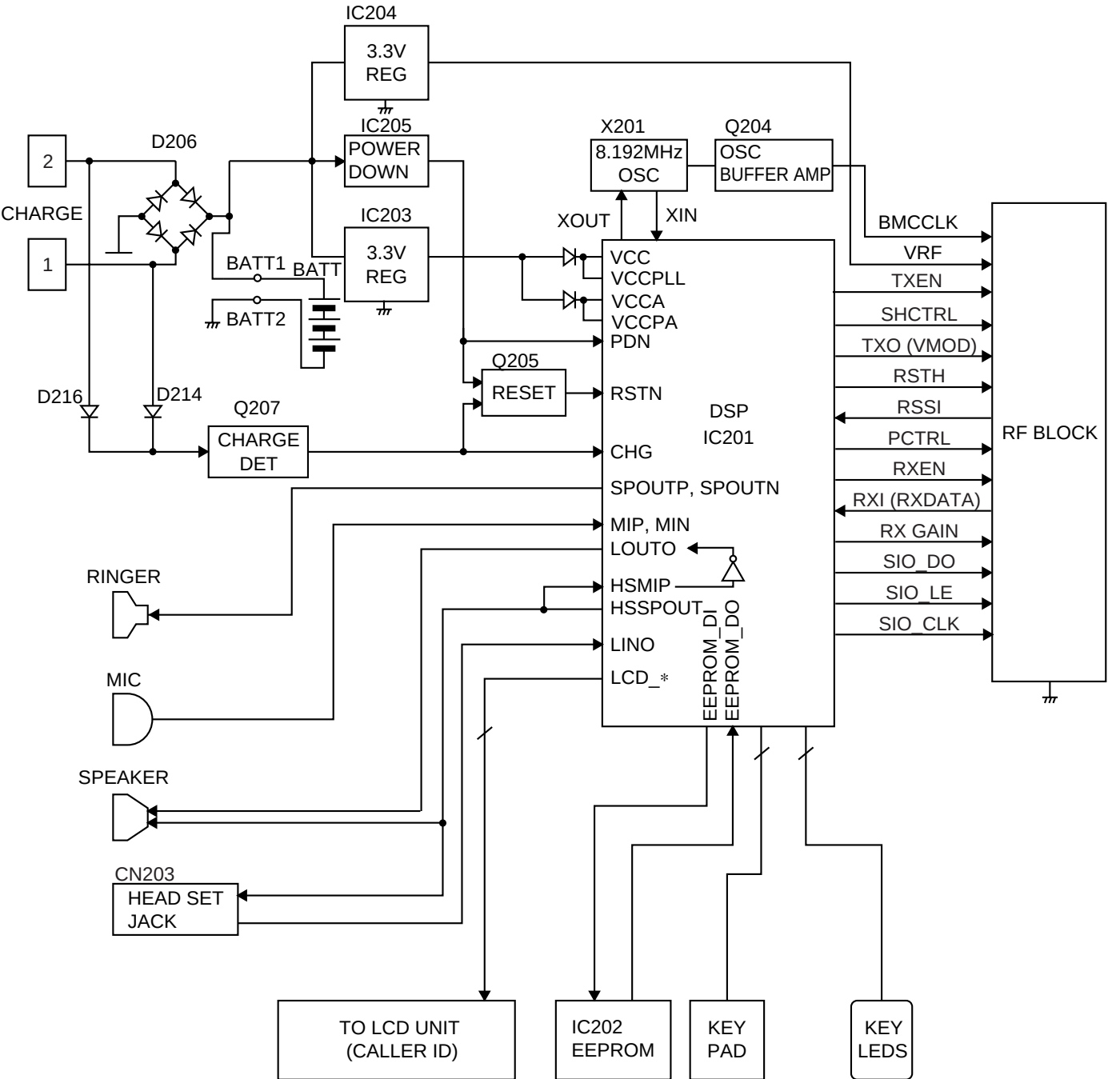








KX-TG2257S BLOCK DIAGRAM (BASE UNIT)



KX-TG2257S BLOCK DIAGRAM (HANDSET)

